

MASS.  
DOCS.  
COLL.

\* UMASS/AMHERST \*



312066 0284 2112 8

# DEPARTMENT OF PUBLIC WORKS

---

YEAR ENDING NOVEMBER 30

1921

UNIVERSITY OF  
MASSACHUSETTS

GOODELL  
LIBRARY



THE BOOK-PLATE IS A GIFT OF DR. WILLIAM GOODELL.





The Commonwealth of Massachusetts

---

ANNUAL REPORT

OF THE

DEPARTMENT OF PUBLIC WORKS

FOR THE

YEAR ENDING NOVEMBER 30, 1921



BOSTON

WRIGHT & POTTER PRINTING CO., STATE PRINTERS  
32 DERNE STREET

PUBLICATION OF THIS DOCUMENT  
APPROVED BY THE  
SUPERVISOR OF ADMINISTRATION.

# The Commonwealth of Massachusetts

---

## DEPARTMENT OF PUBLIC WORKS.

---

*To the Honorable Senate and House of Representatives of the Commonwealth of Massachusetts.*

Pursuant to the provisions of law, I have the honor as Commissioner of Public Works to submit the second annual report of the Department of Public Works for the fiscal year ending Nov. 30, 1921.

Chapter 350, General Acts of 1919, abolished the Massachusetts Highway Commission and the Commission on Waterways and Public Lands, and established the Department of Public Works, which was to be organized in two divisions, namely, a Division of Highways and a Division of Waterways and Public Lands, and made said Department the successor of said commissions.

Some of the provisions of chapter 350 aforesaid are now found in chapter 16, General Laws, which provides:—

SECTION 1. There shall be a department of public works, consisting of a division of highways and a division of waterways and public lands.

SECTION 2. The department shall be under the supervision and control of a commissioner of public works and four associate commissioners. Upon the expiration of the term of office of a commissioner or an associate commissioner, his successor shall be appointed for three years by the governor, with the advice and consent of the council. The commissioner shall receive such salary, not exceeding seventy-five hundred dollars, and the associate commissioners such salaries, not exceeding six thousand dollars, as the governor and council may determine. The commissioner and associate commissioners shall be allowed their actual traveling and other necessary expenses.

SECTION 3. Two of the associate commissioners shall be designated by the governor to have charge of the division of highways, and two to have charge of the division of waterways and public lands. Whenever a change in the associate commissioners occurs, the governor may make a new designation. The commissioner may act as a member of both divisions, and when present shall act as chairman of the division. The

concurrence of two members shall be necessary in any official act of either division.

SECTION 4. The commissioner shall be the executive and administrative head of the department. He shall approve all contracts made by either division, and may require any of the expenditures of either division to be submitted to him for approval. He may appoint, assign to divisions, transfer and remove such officials and employees as the work of the department may require, and fix their compensation.

SECTION 5. The commissioner shall appoint and may remove, subject to the approval of the governor and council, an official to be known as the registrar of motor vehicles, and may, with like approval, fix his compensation.

SECTION 6. Except as otherwise provided by sections thirty-one and forty-one of chapter ninety and section sixty of chapter one hundred and forty, all rules and regulations within the jurisdiction of the division of highways or the division of waterways and public lands shall be drafted by the associate commissioners having charge of said division, shall be submitted to the commissioner and associate commissioners sitting as a board, and shall take effect when approved by them, and at such time as they shall designate. Said board shall also have power to make all needful rules and regulations for carrying out the provisions of law relating to the department.

SECTION 7. The commissioner shall make an annual report containing, in addition to other matters required by law the following:

A list of the expenditures of the division of highways, with such statements relative to the construction and maintenance of public ways and such recommendations as to the general policy of the commonwealth relative thereto as it considers appropriate.

He shall also make an annual report containing, in addition to other matters required by law, a statement of the acts of the division of waterways and public lands.

The personnel during the year ending Nov. 30, 1921, was as follows: —

Commissioner of Public Works, JOHN N. COLE.

*Division of Highways.*

Associate Commissioner, FRANK D. KEMP.

Associate Commissioner, JAMES W. SYNAN.

*Division of Waterways and Public Lands.*

Associate Commissioner, JESSE B. BAXTER.

Associate Commissioner, RICHARD K. HALE.

Executive Secretary for the Department, FREDERICK N. WALES.



*Division of Highways.*

Chief Engineer, ARTHUR W. DEAN.

Construction Engineer, FRANKLIN C. PILLSBURY.

District Engineers:—

District No. 1, Berkshire County, GEORGE A. CURTIS.

District No. 2, Franklin and Hampshire counties, H. D. PHILLIPS.

District No. 3, Hampden and Worcester counties, JOHN A. JOHNSTON.

District No. 4, Middlesex County, F. D. SABIN.

District No. 5, Essex and Suffolk counties, D. H. DICKINSON.

District No. 6, Norfolk and Bristol counties, R. W. COBURN.

District No. 7, Plymouth, Barnstable, Dukes and Nantucket counties,

GEORGE H. DELANO.

Recording Secretary for the Division, MARY A. RILEY.

Financial Secretary for the Division, FRED FAIR.

*Division of Waterways and Public Lands.*

Chief Engineer, FRANK W. HODGDON.

Assistant to the Chief Engineer, for Boston Harbor, JOHN N. FERGUSON.

Assistant to the Chief Engineer, for harbors and waterways outside Boston Harbor, FRANCIS L. SELLEW.

Recording Secretary for the Division, EDNA F. TOWNSEND.

Financial Secretary for the Division, CORA I. ALLEN.

Bridge Engineer for the Department, WILLIAM F. WILLIAMS.

*Registry of Motor Vehicles.*

Registrar, FRANK A. GOODWIN.

Chief Clerk, CHARLES R. GILLEY.

Chief of Inspection Force, ALBERT S. OLSSON.

A detailed report is presented herewith, covering the activities for the year of the Division of Highways, the Division of Waterways and Public Lands, and the Registry of Motor Vehicles.

JOHN N. COLE,

*Commissioner.*

Digitized by the Internet Archive  
in 2010 with funding from  
Boston Library Consortium Member Libraries

---

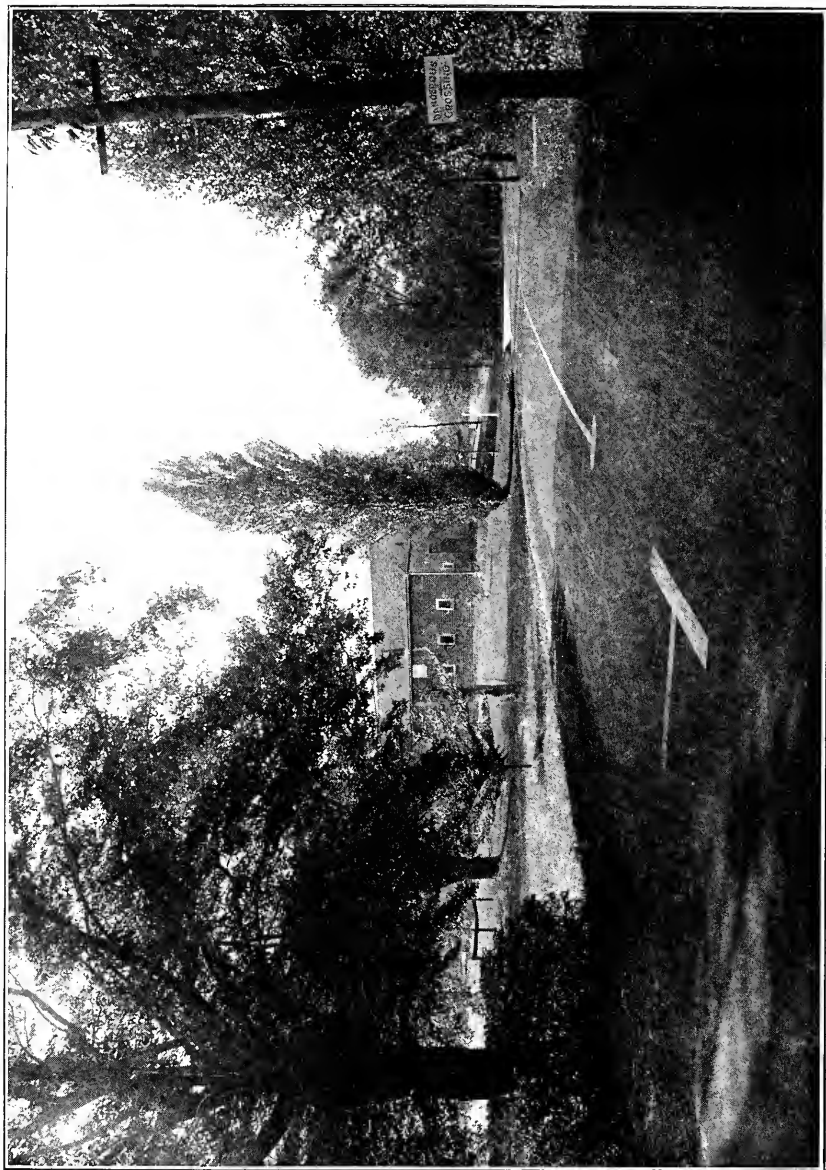
---

# DIVISION OF HIGHWAYS

---

---





Illustrating safety lines in Sudbury.



## DIVISION OF HIGHWAYS.

### APPROPRIATIONS.

The appropriations for the construction and repair of State highways during the period 1903 to 1921, inclusive, were —

1903 . . . . .	\$2,250,000 00 <sup>1</sup>
1907 . . . . .	2,500,000 00 <sup>1</sup>
1912 . . . . .	5,000,000 00 <sup>1</sup>
1919 . . . . .	4,000,000 00 <sup>2</sup>
<hr/>	
Total . . . . .	\$13,750,000 00

The total of such appropriations during the period 1894 to Nov. 30, 1921, inclusive, was \$18,250,000.

The appropriations for maintenance during the period 1914 to 1921, inclusive, paid from the treasury of the Commonwealth, were —

1914 . . . . .	\$350,000 00 <sup>3</sup>
1915 . . . . .	350,000 00 <sup>3</sup>
1916 . . . . .	415,000 00 <sup>3</sup>
1917 . . . . .	404,547 86 <sup>3</sup>
1918 . . . . .	258,462 80
1919 . . . . .	312,524 64
1920 . . . . .	358,889 44
1921 . . . . .	367,697 00
<hr/>	
Total . . . . .	\$2,817,121 74

The total of such appropriations during the period 1903 to Nov. 30, 1921, inclusive, was \$4,331,288.40.

The appropriations made in 1921, and relating to the Department of Public Works, Division of Highways, are included in various items in chapters 203 and 502, Acts of 1921, which follow.

Chapter 203, Acts of 1921, making appropriations for the

---

<sup>1</sup> To cover expense of construction for a period of five years.

<sup>2</sup> To cover expense of construction for a period of four years, 1920-23, inclusive.

<sup>3</sup> Includes appropriations for widening.

maintenance of departments, boards, commissions, institutions and certain activities of the Commonwealth, for interest, sinking fund and serial bond requirements, and for certain permanent improvements, is, in part, as follows:—

## SERVICE OF THE DEPARTMENT OF PUBLIC WORKS.

## Item

575	For the salaries of the commissioner and the four associate commissioners, a sum not exceeding thirty-one thousand five hundred dollars . . . . .	\$31,500 00
576	For personal services of clerks and assistants to the commissioner, a sum not exceeding twelve thousand eight hundred and fifty dollars . . . . .	12,850 00
576½	For traveling expenses of the commissioner, a sum not exceeding fifteen hundred dollars . . . . .	1,500 00
Total . . . . .		<u>\$45,850 00</u>

Division of Highways (the following appropriations for the operation and maintenance of this division, except as otherwise provided, are made from the receipts in the Motor Vehicle Fees Fund):

577	For the personal services of the chief engineer, engineers and office assistants, including certain clerks and stenographers, a sum not exceeding forty-seven thousand five hundred dollars . . . . .	\$47,500 00
578	For traveling expenses of the associate commissioners, when traveling in the discharge of their official duties, a sum not exceeding twenty-five hundred dollars . . . . .	2,500 00
579	For services other than personal, including printing the annual report and necessary office supplies and equipment, a sum not exceeding twelve thousand dollars . . . . .	12,000 00
580	For the care, repair and storage, replacement and purchase of road-building machinery and tools, a sum not exceeding three hundred thousand dollars . . . . .	300,000 00
581	For the suppression of gypsy and brown tail moths on state highways, a sum not exceeding fifteen thousand dollars . . . . .	15,000 00
582a	For the construction and repair of town and county ways, a sum not exceeding seven hundred thousand dollars . . . . .	700,000 00
582b	For aiding towns in the repair and improvement of public ways, a sum not exceeding four hundred thousand dollars . . . . .	400,000 00
582c	For the maintenance and repair of state highways, a sum not exceeding two million ten thousand five hundred dollars, of which sum three hundred sixty-seven thousand six hundred and ninety-seven dollars represents the receipts from assessments upon certain cities and towns for the maintenance of state highways, and the balance from receipts in the Motor Vehicle Fees Fund . . . . .	2,010,500 00
582d	For engineering service and expenses, a sum not exceeding two hundred thousand dollars . . . . .	200,000 00
583	For the maintenance and operation of the Newburyport bridge and the Brightman street bridge in Fall River, in accordance with the provisions of existing laws, a sum not exceeding twenty-nine thousand dollars . . . . .	29,000 00
Total . . . . .		<u>\$3,716,500 00</u>



## Item

## Registration of Motor Vehicles:

584	For personal services, a sum not exceeding three hundred thirty-two thousand five hundred dollars, from receipts in the Motor Vehicle Fees Fund . . . . .	\$332,500 00
585	For services other than personal, including traveling expenses, purchase of necessary supplies, equipment and materials, including cartage and storage of the same, and for work incidental to the registration and licensing of owners of motor vehicles, a sum not exceeding two hundred forty thousand dollars, from receipts in the Motor Vehicle Fees Fund . . . . .	240,000 00
	Total . . . . .	<u>\$572,500 00</u>

586	For the purpose of enabling the department of public works to secure federal aid for the construction of highways, a sum not exceeding one million dollars in addition to any other funds which the department has available for the purpose; of the said sum seven hundred fifty thousand dollars shall be payable from receipts in the Motor Vehicle Fees Fund, and the balance from receipts from counties for assessments on highways previously constructed, or from the general fund	\$1,000,000 00
587 <sup>1</sup>	For the care of snow on highways, as provided by section nineteen of chapter eighty-one of the General Laws, a sum not exceeding fifty thousand dollars, from receipts in the Motor Vehicle Fees Fund . . . . .	\$50,000 00
588½	For administering the law relative to advertising signs near highways, a sum not exceeding fifteen thousand dollars, to be paid from the general fund . . . . .	\$15,000 00

## Division of Waterways and Public Lands:

589	For personal services of the chief engineer and assistants, a sum not exceeding fifty-nine thousand dollars, from receipts in the Port of Boston Fund . . . . .	\$59,000 00
590	For necessary traveling expenses of the associate commissioners, a sum not exceeding one thousand dollars . . . . .	1,000 00
591	For services other than personal, including printing and binding the annual report, and for necessary office and engineering supplies and equipment, a sum not exceeding eight thousand dollars . . . . .	8,000 00
592	For the care and maintenance of the Province lands, a sum not exceeding four thousand dollars . . . . .	4,000 00
593	For the maintenance of structures, and for repairing damages along the coast line or river banks of the commonwealth, and for the removal of wrecks and other obstructions from tide-waters and great ponds, and for gauging of streams in co-operation with the federal government, a sum not exceeding twenty-five thousand dollars . . . . .	25,000 00
594	For the improvement, development and protection of rivers and harbors, tidewaters and foreshores within the commonwealth, as provided by chapter two hundred and thirty-one of the General Acts of nineteen hundred and nineteen, and of great ponds, a sum not exceeding two hundred fifty thousand dollars . . . . .	250,000 00

<sup>1</sup> See reference to this item in 1921, 502, section 2, under item 28c.

## Item

595	For re-establishing and permanently marking certain triangular points and sections as required by order of the land court, in accordance with section thirty-three of chapter ninety-one of the General Laws, a sum not exceeding one thousand dollars . . . . .	\$1,000 00
597	For the supervision and operation of commonwealth pier five, including the salaries or other compensation of employees, and for the repair and replacement of equipment and other property, a sum not exceeding eighty-nine thousand dollars, from receipts in the Port of Boston Fund . . . . .	89,000 00
598	For the maintenance of pier one, at East Boston, a sum not exceeding fifteen thousand dollars, from receipts in the Port of Boston Fund . . . . .	15,000 00
599	For the maintenance and improvement of commonwealth property under the control of the division, a sum not exceeding fifty-five thousand dollars, from receipts in the Port of Boston Fund . . . . .	55,000 00
600	For the operation and maintenance of the New Bedford state pier, a sum not exceeding ten thousand dollars . . . . .	10,000 00
601	For the compensation of dumping inspectors, a sum not exceeding two thousand dollars, to be paid from the Waterways Fund . . . . .	2,000 00
601½	For the payment of money due contractors for work done and material furnished in the construction of the dry dock at South Boston and held by the commonwealth as retained percentages, the amount received from the federal government as the final payment in connection with the purchase of the dry dock and placed in the Port of Boston Fund, the sum of sixty thousand thirty-four dollars and twenty-two cents . . . . .	60,034 22
Total . . . . .		<u>\$579,034 22</u>

The following appropriations for special improvements are to be made from the Port of Boston Fund:

602	For dredging and filling upon property of the commonwealth, a sum not exceeding three hundred seventy thousand dollars, the same to be in addition to any sum heretofore appropriated for the purpose . . . . .	\$370,000 00
603	For improvements of the commonwealth pier at East Boston, a sum not exceeding four thousand dollars . . . . .	4,000 00
604	For dredging in and about minor channels in Boston harbor, a sum not exceeding eighty thousand dollars, the same to be in addition to any sum heretofore appropriated for the purpose . . . . .	80,000 00
605	For the construction of a pier and the improvement of land and flats near Hayward's creek in the city of Quincy and the town of Braintree, a sum not exceeding one hundred sixty thousand dollars . . . . .	160,000 00
606	For street and pier improvements and developments upon property of the commonwealth at South Boston, a sum not exceeding one hundred forty thousand dollars, the same to be in addition to any amount heretofore appropriated for the purpose . . . . .	140,000 00
Total . . . . .		<u>\$754,000 00</u>

Item	<i>Deficiencies.</i>
Division of Highways:	
For the care, repair and storage, replacement and purchase of road-building machinery and tools, the sum of forty-seven dollars and thirty-eight cents . . . . .	\$47 38
For the maintenance of state highways and the improvement and construction of town ways and certain through routes, in accordance with the provisions of existing laws, and for the payment of any claims for damages occurring on state highways, with the approval of the attorney-general, the sum of two hundred sixty-eight dollars and twenty-nine cents . . . . .	268 29
For expenses on account of construction of state highways for the year 1917-1918, the sum of ninety-four dollars and forty-four cents . . . . .	94 44
Division of Waterways and Public Lands:	
For the maintenance and improvement of commonwealth property under the control of the division, the sum of forty-four hundred forty-one dollars and twenty cents . . . . .	\$4,441 20

Chapter 502, Acts of 1921, in addition to the general appropriation act making appropriations to supplement certain items contained therein, and for certain new activities and projects is, in part, as follows: —

SERVICE OF THE DEPARTMENT OF PUBLIC WORKS.

Item	
Registration of Motor Vehicles:	
584 For personal services, a sum not exceeding seventy-five hundred dollars, from receipts in the Motor Vehicle Fees Fund, the same to be in addition to any amount heretofore appropriated for the purpose . . . . .	\$7,500 00
585 For services other than personal, including traveling expenses, purchase of necessary supplies, equipment and materials, including cartage and storage of the same, and for work incidental to the registration and licensing of owners of motor vehicles, a sum not exceeding twenty-five hundred dollars, from the receipts in the Motor Vehicle Fees Fund, the same to be in addition to any amount heretofore appropriated for the purpose . . . . .	2,500 00
28c Item five hundred and eighty-seven of chapter two hundred and three of the general appropriation act is hereby amended by striking out said item and inserting in place thereof the following: For the care of snow on highways, as provided by section eleven of chapter eighty-four of the General Laws, a sum not exceeding fifty thousand dollars, from receipts in the Motor Vehicle Fees Fund.	
Division of Waterways and Public Lands:	
607a For making rail connections with the property of the commonwealth at East Boston, as authorized by chapter four hundred and ninety-four of the acts of the present year, a sum not exceeding one hundred thousand dollars, the same to be paid from the Port of Boston Fund . . . . .	\$100,000 00

## Item

607b	For the State's part of the expense of establishing a public reservation at Good Harbor Beach in the city of Gloucester, a sum not exceeding five hundred dollars . . . . .	\$500 00
------	---	----------

SECTION 3. The treasurer and receiver-general is hereby authorized and directed to transfer the balance of forty-nine thousand one hundred twenty-three dollars and forty-three cents, remaining to the credit of a fund known as the Compensation Fund for Boston Harbor, to the Port of Boston Fund established by chapter six hundred and sixty-three of the acts of nineteen hundred and twelve.

## EXPENDITURES.

Summary of expenditures by the Division during the fiscal year ending Nov. 30, 1921:—

For construction of State highways, under chapter 81, General Laws . . . . .	\$2,047,865 85
For maintenance of State highways, from Motor Vehicle Fees Fund, under chapter 81, General Laws, section 13 . . . . .	2,265,377 23
For maintenance of State highways from revenue appropriations, under chapter 81, General Laws, section 13 . . . . .	367,697 00
For maintenance and improvement of town and county ways, under chapter 90, General Laws, section 34 as amended . . . . .	765,303 76
For construction and repair of ways not State highways in certain towns, under chapter 81, General Laws, section 23 . . . . .	74,533 24
For highways in the five western counties, under General Acts of 1915, chapter 221 . . . . .	381,090 53
For repair and improvement of public ways, exclusive of State highways, in certain towns, under chapter 81, General Laws, sections 26-29, 31 and amendment . . . . .	361,523 95
For maintenance and improvement of public ways, exclusive of State highways, in certain towns, under General Acts of 1918, chapter 155 . . . . .	20,318 27
For the construction and maintenance of a State highway in Hingham, under General Acts of 1916, chapter 213, and Acts of 1921, chapter 138 . . . . .	271 79
For the construction and improvement of the Holland Road in Holland and Brimfield, under Special Acts of 1919, chapter 232 . . . . .	2,096 58
For the construction and improvement of a highway between Holden and the Wachusett Mountain State Reservation, under Special Acts of 1919, chapter 233 . . . . .	3,504 90
For the improvement of the highway between Westborough and the village of North Grafton, under General Acts of 1919, chapter 335 . . . . .	4,000 00

For the construction and improvement of the highway from North Brookfield to New Braintree, under General Acts of 1919, chapter 336 . . . . .	\$193 25
For the further improvement of a highway in Hubbardston and Rutland, under General Acts of 1919, chapter 337 . . . . .	15,138 11
For the construction of a State highway in Holyoke, under General Acts of 1919, chapter 338 . . . . .	48,119 61
For the further improvement of a section of State highway in Dracut and Methuen, under General Acts of 1919, chapter 340 . . . . .	20,000 00
For the construction of a State highway in Norton, under General Acts of 1919, chapter 348 . . . . .	19,861 33
For the construction and improvement of the Clinton-West Boylston road, in Clinton, under Acts of 1920, chapter 520 . . . . .	29,661 03
For the construction and improvement of a highway in Holden, under Acts of 1920, chapter 521 . . . . .	19,306 53
For the construction and improvement of a highway in Templeton, under Acts of 1920, chapter 522 . . . . .	94 52
For the improvement of the main highway in Westborough, under Acts of 1920, chapter 536 . . . . .	14,000 00
For the construction and improvement of highway in Chester, Middlefield, Peru and Hinsdale, under Acts of 1920, chapter 566 . . . . .	5,971 13
For the construction of a highway in Blandford, Otis, Monterey and Great Barrington, under Acts of 1920, chapter 571 . . . . .	17,326 24
For the maintenance and operation of the bridge over Merrimack River between Newburyport and Salisbury, under Acts of 1912, chapter 716 . . . . .	7,253 88
For the maintenance and operation of the bridge over Taunton Great River at Brightman Street in Fall River, under Acts of 1912, chapter 717 . . . . .	16,863 57
For State aid in keeping certain highways open during the winter months, under chapter 84, General Laws, section 11 . . . . .	47,333 83
For the regulation of advertising signs and devices within the public view, under chapter 93, General Laws, sections 29-33 . . . . .	6,175 72
For the suppression of gypsy and brown-tail moths and elm-leaf beetles on State highways . . . . .	15,000 00
For the care, repair and storage, replacement and purchase of road-building machinery and tools . . . . .	<sup>1</sup> 326,166 89
For general expenses, under Acts of 1921, chapter 203 . . . . .	60,880 15
<b>Total . . . . .</b>	<b>\$6,962,928 89</b>

<sup>1</sup> Includes first appropriation made in 1920.

## CO-OPERATIVE WORK — SUPERVISION OF EXPENDITURES.

The Division has supervised the expenditures during the year by cities, towns and counties, under section 26 of chapter 81 of the General Laws, as amended by section 1 of chapter 120 of the Acts of 1921,<sup>1</sup> and under section 34 of chapter 90 of the General Laws, as amended by section 1 of chapter 112 of the Acts of 1921,<sup>2</sup> of approximately \$2,040,347 for co-operative work, in repairing, maintaining and improving certain public ways, and for other road work for which the towns and cities made contributions. All such work was carried out in conformity with contracts, specifications and plans approved by the Division.

## PETITIONS, MEETINGS AND HEARINGS.

In addition to the regular weekly meetings of the Division throughout the year, numerous hearings and conferences have been held, including the annual meeting and hearing in the several counties in the Commonwealth, for the open discussion of questions relative to the public ways, as required by section 1 of chapter 81 of the General Laws; hearings on petitions for the relocation of street railway tracks in Andover, Swansea, Marion, Mattapoisett, Wareham, Lynn and Winchester; appeals from the action taken by the registrar of motor vehicles in the suspension or revocation of certain licenses to operate motor vehicles; and on the matter of outdoor advertising.

Petitions were received and contracts signed during the year, as follows:—

	Petitions.	Contracts.
State highways . . . . .	12	27
Work under section 34, chapter 90, General Laws, as amended	90	143
Work under section 26, chapter 81, General Laws, as amended	122	111
Work under special acts . . . . .	—	15
Totals . . . . .	224	296

<sup>1</sup> Printed on pages 86, 87.

<sup>2</sup> Printed on page 70.

GENERAL STATEMENT AS TO SURVEYS, PLANS, ESTIMATES  
AND OTHER WORK DURING THE YEAR.

*State Highways.* — During the year ending Nov. 30, 1921, the Division completed work on about 46.72 miles of State highway, portions of which were laid out in 1920. Construction was commenced, but not completed, on over 16 miles of road in 10 cities and towns. Layouts were made of 39.587 miles of State highway in 26 cities and towns. The total length of State highways at the end of the year was 1,393.548 miles.

*Surveys, Estimates and Designs.* — During the year preliminary surveys, plans and estimates were made on contemplated State highways in 50 towns covering a distance of 79 miles. Surveys, plans and estimates were made for resurfacing or reconstruction in 29 towns covering a distance of 44.37 miles. Lines and grades for construction work on State highways were made in 37 towns covering a distance of 68.55 miles, and for resurfacing and reconstruction in 19 towns for a distance of 22.80 miles. Final surveys were made on completed State highways in 34 towns for a distance of 63.93 miles, for resurfacing or reconstruction in 13 towns for a distance of 37.50 miles, and on roads other than State highways in 26 towns for a distance of 24.92 miles. Under section 23 of chapter 81 of the General Laws, and section 34 of chapter 90 of the General Laws as amended, and for roads to be constructed by the towns, surveys, plans and estimates have been made in 72 towns for a distance of 59.37 miles.

Lines and grades for construction have been made in 77 towns for a distance of 58.15 miles.

Under chapter 221, General Acts of 1915, and for work under special acts, surveys, plans and estimates have been made in 9 towns for a distance of 12.63 miles, and lines and grades for construction have been made in 11 towns for a distance of 18.06 miles.

Layout plans have been made in 26 towns covering a distance of 39.587 miles. Plans to accompany decrees for street railway locations on State highways have been made in 5 towns.

*Roads constructed in 1921.* — Construction has been completed on 47.72 miles of State highway, 2.30 miles of highways under the provisions of section 23 of chapter 81 of the General Laws, 85.75 miles of highways under the provisions of section 34 of chapter 90 of the General Laws, as amended, and 21.61 miles of highways under the provisions of special acts, making a total of 157.38 miles completed during the year.

Of the above roads completed this year, .97 of a mile was of water-bound macadam; 33.30 miles were of gravel; 15.10 miles were of bituminous concrete; 61.64 miles were of bituminous macadam; 3.94 miles were of water-bound macadam with an oil or tar surface applied; 6.18 miles were of reinforced concrete; 15.34 miles were of cement concrete; 19.67 miles were of gravel with an oil surface applied; and 1.13 miles were earth roads, that is, surfaced with the best available material; .11 of a mile was of granite block.

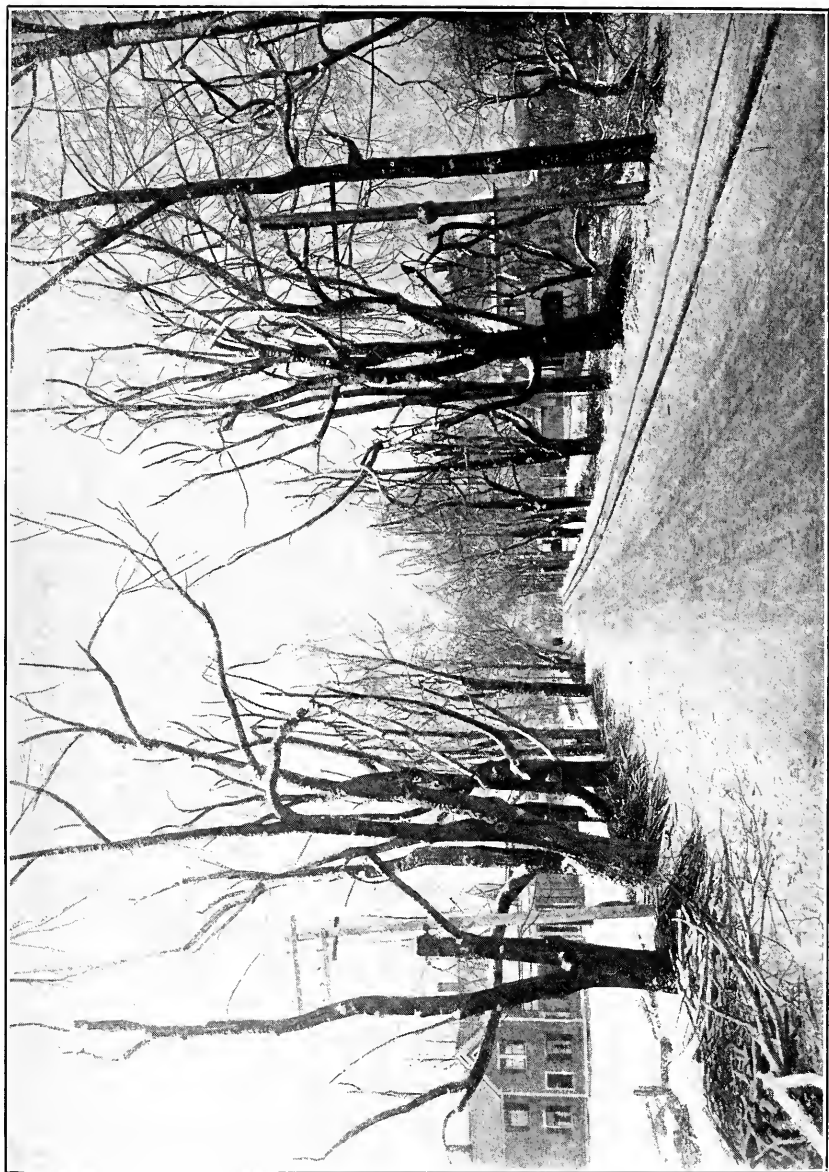
*Trees on State Highways.* — During the last seventeen years 45,607 trees have been planted on the borders of State highways, of which 887 were planted this year, the Division continuing its policy of planting quick-growing trees and hedges to replace guard rails.

*Permits.* — There were 1,117 permits issued during the year for opening or occupying State highways for various purposes.

*Resurfacing and Widening.* — During the year 3.85 miles of State highway were resurfaced without widening, 5.48 miles were widened but not resurfaced, and 20.13 miles were resurfaced and widened. These figures are for completed work. There is uncompleted work in various stages on a number of miles of road where the work will be completed next year.

*Engineering Advice to Municipal Authorities.* — The Division furnished, without charge, engineering advice to cities and towns in the Commonwealth, in accordance with the provisions of section 1 of chapter 81 of the General Laws.





Result of storm of Nov. 28, 1921, in Shrewsbury.



## STATE HIGHWAYS.

Chapter 81, General Laws, section 4, provides that —

If county commissioners, aldermen or selectmen adjudge that public necessity and convenience require that the commonwealth lay out and take charge of a new or existing way as a highway in whole or in part, in their county, city or town, they may apply, by a written petition, to the division, requesting that said way be laid out and taken charge of by the commonwealth.

The following petitions under chapter 81 aforesaid have been submitted during the year: —

SELECTMEN OF WOBURN. — Section of Salem Street from Pine Street to Beach Street. Received Feb. 24, 1921.

MAYOR AND ALDERMEN OF HAVERHILL. — Section of Broadway from North Broadway to the Methuen line. Received Feb. 25, 1921.

SELECTMEN OF LAKEVILLE. — Section from the Middleborough line to the State highway; section of Bedford Street to the Rochester line; and section of Lakeside Avenue from Bedford Street to the Freetown line. Received March 15, 1921.

SELECTMEN OF CANTON. — Section of Washington Street from the Milton line to the village of Ponkapoag. Received May 31, 1921.

MAYOR AND ALDERMEN OF WALTHAM. — Section of Lexington Street from Lake Street to the Lexington line. Received June 15, 1921.

SELECTMEN OF LANESBOROUGH. — Section of the Pittsfield-Williamstown road from the Pittsfield line to the New Ashford line. Received July 1, 1921.

SELECTMEN OF WILLIAMSTOWN. — Section of the River Road from the village of South Williamstown to the New Ashford line. Received July 1, 1921.

MAYOR AND ALDERMEN OF NORTH ADAMS. — Section of the Hodge Cross Road from Church Street to State Street. Received Sept. 13, 1921.

SELECTMEN OF WAREHAM. — Approach to new bridge over Cohasset Narrows. Received Sept. 13, 1921.

SELECTMEN OF BOURNE. — Approach to new bridge over Cohasset Narrows. Received Sept. 15, 1921.

SELECTMEN OF EGREMONT. — Section of Great Barrington road from the village of South Egremont to the Great Barrington line. Received Oct. 21, 1921.

MAYOR AND ALDERMEN OF HAVERHILL. — Section of Kenoza Street from the Amesbury road to Kenoza Avenue. Received Oct. 25, 1921.

The expenditures during the year in various counties for the construction of State highways were:—

COUNTY.	Amount.
Barnstable . . . . .	\$20,704 20
Berkshire . . . . .	66,319 16
Bristol . . . . .	41,488 11
Essex . . . . .	402,593 73
Franklin . . . . .	168,143 98
Hampshire . . . . .	310,626 95
Middlesex . . . . .	301,977 12
Norfolk . . . . .	68,397 61
Plymouth . . . . .	54,226 63
Suffolk . . . . .	3,221 82
Worcester . . . . .	610,166 54

Details of the foregoing expenditures follow:—

*Barnstable County.*

Barnstable . . . . .	\$12,475 11
Bourne . . . . .	67 88
Provincetown . . . . .	8,161 21

*Berkshire County.*

Dalton . . . . .	2,454 13
Egremont . . . . .	18,212 19
Hinsdale . . . . .	627 67
Lanesborough . . . . .	11,554 85
Sheffield . . . . .	446 99
Washington . . . . .	418 45
Windsor . . . . .	32,604 88

*Bristol County.*

Taunton . . . . .	41,488 11
-------------------	-----------

*Essex County.*

Andover . . . . .	4,602 97
Danvers . . . . .	17,164 88
Lynnfield . . . . .	119,008 86
Middleton . . . . .	68,883 83
North Andover . . . . .	702 03
Peabody . . . . .	114,086 96
Saugus . . . . .	76,394 34
Topsfield . . . . .	1,749 86

*Franklin County.*

Conway . . . . .	\$811 62
Deerfield . . . . .	300 78
Greenfield . . . . .	66,812 63
Shelburne . . . . .	100,218 95

*Hampshire County.*

Amherst . . . . .	541 88
Cummington . . . . .	172,471 54
Huntington . . . . .	76,290 80
Ware . . . . .	61,322 73

*Middlesex County.*

Ashby . . . . .	55,084 00
Billerica . . . . .	8,561 28
Groton . . . . .	155,475 70
Littleton . . . . .	43,859 89
Waltham . . . . .	30,695 84
Woburn . . . . .	8,300 41

*Norfolk County.*

Braintree . . . . .	23,464 12
Holbrook . . . . .	269 98
Quincy . . . . .	44,447 52
Wrentham . . . . .	215 99

*Plymouth County.*

Hingham . . . . .	29,487 48
Kingston . . . . .	612 73
Norwell . . . . .	24,126 42

*Suffolk County.*

Boston . . . . .	3,221 82
------------------	----------

*Worcester County.*

Barre . . . . .	5,580 08
Leicester . . . . .	79,689 97
Mendon . . . . .	35,759 36
Northbridge . . . . .	12,230 57
Oakham . . . . .	42 15
Oxford . . . . .	203,146 69
Shrewsbury . . . . .	5 56
Templeton . . . . .	45,265 49
Upton . . . . .	99,907 11
Uxbridge . . . . .	51,460 03
Westminster . . . . .	5 86
Winchendon . . . . .	77,073 67

Total . . . . .	\$2,047,865 85
-----------------	----------------

## CONSTRUCTION AND RESURFACING OF STATE HIGHWAYS.

(Chapter 81, General Laws.)

The following contracts were entered into during the year for the construction and resurfacing of State highways in various municipalities: —

*Braintree.*

Feb. 23, 1921, contract made with the Norfolk County commissioners for the resurfacing of 260 feet of State highway on Quincy Avenue at the approach to the bridge over Monatiquot River, the surface consisting of bituminous macadam 26 feet wide. The proposal amounted to \$2,243.

Work completed July 19, 1921.

Expenditure during 1921, \$2,243.

*East Brookfield—Spencer.*

March 8, 1921, contract made with Hinman & Rudiger of Sturbridge for the surfacing of 2,245 feet of State highway in East Brookfield and 2,550 feet of State highway in Spencer, the surface consisting of bituminous macadam 20 feet wide. The proposal amounted to \$49,056.25.

Work completed Aug. 9, 1921.

Expenditure during 1921, \$58,600.46.

*Palmer.*

March 8, 1921, contract made with Willard C. Tannatt, Jr., of Easthampton for the surfacing of 9,479 feet of State highway, the surface consisting of cement concrete 20 feet wide. The proposal amounted to \$95,729.75.

Work completed Oct. 18, 1921.

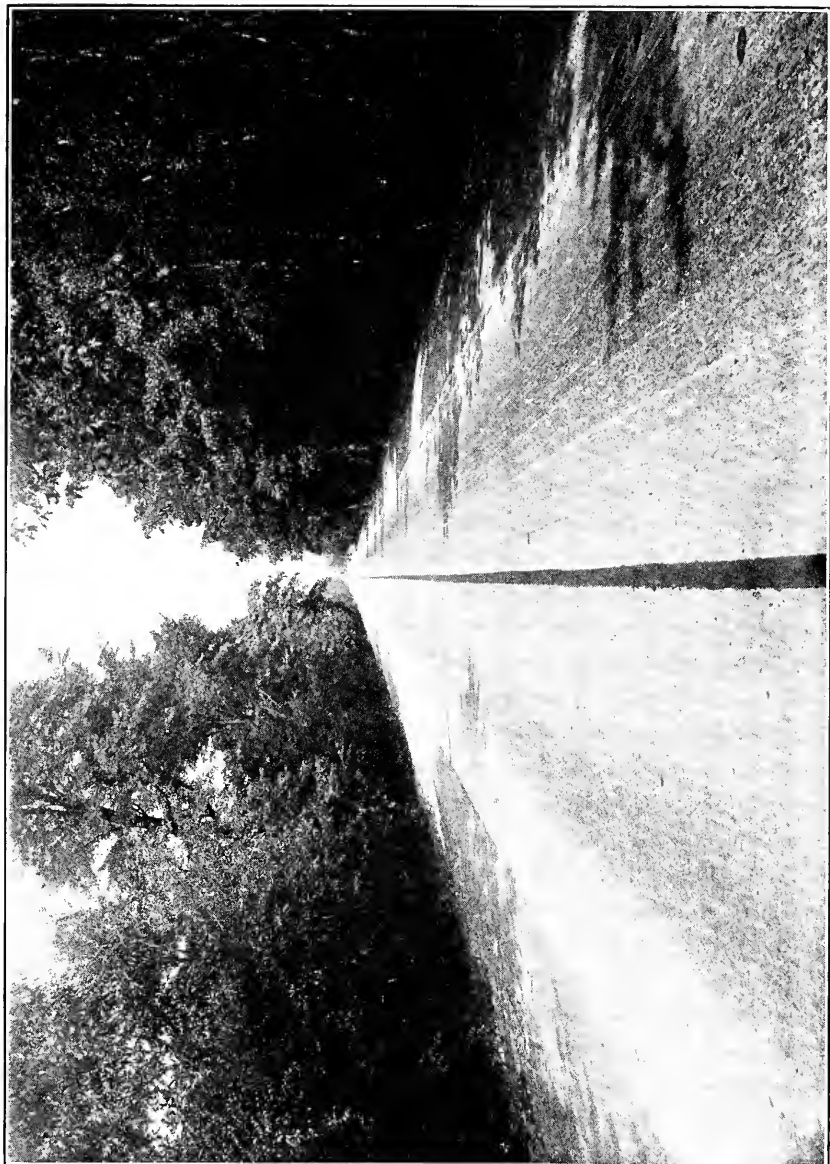
Expenditure during 1921, \$100,009.61.

*East Brookfield.*

March 8, 1921, contract made with Carlo Bianchi & Co., Inc., of Framingham for the surfacing of 5,241 feet of State highway, the surface consisting of cement concrete 20 feet wide. The proposal amounted to \$49,755.

Work completed July 5, 1921.

Expenditure during 1921, \$56,679.



Concrete road in East Brookfield.





*Ashby.*

April 26, 1921, contract made with the Lane Construction Corporation of Meriden, Conn., for the construction of 6,602 feet of State highway, the surface consisting of bituminous macadam 18 feet wide. The proposal amounted to \$37,098.50.

Work completed Aug. 16, 1921.

Expenditure during 1921, \$44,638.05.

*Upton.*

May 3, 1921, contract with the R. H. Newell Company of Uxbridge for the construction of 8,830 feet of State highway, the surface consisting of bituminous concrete 18 feet wide. The proposal amounted to \$67,996.

Work completed Sept. 27, 1921.

Expenditure during 1921, \$80,945.62.

*Waltham.*

May 10, 1921, contract made with Samuel O. Hoyt of Holyoke for the construction of 5,025 feet of State highway, the surface consisting of bituminous macadam varying from 21 to 24 feet in width. The proposal amounted to \$44,057.

Work completed Aug. 23, 1921.

Expenditure during 1921, \$24,870.04.

*Quincy.*

May 24, 1921, contract made with A. G. Tomasello & Son of Boston for the construction of 2,950 feet of State highway, the surface consisting of cement concrete 20 feet wide. The proposal amounted to \$31,906.25.

Work completed Aug. 30, 1921.

Expenditure during 1921, \$36,011.77.

*Oxford.*

May 24, 1921, contract made with D'Onfro Brothers, Inc., of Leominster for the construction of 3.2 miles of State highway, the surface consisting of cement concrete 20 feet wide. The proposal amounted to \$138,038.15.

Work completed Oct. 25, 1921.

Expenditure during 1921, \$124,870.70.

*Andover.*

June 8, 1921, contract made with James H. Fannon of Somerville for the surfacing of 3,235 feet of State highway, the surface consisting of bituminous macadam 18 feet wide. The proposal amounted to \$14,980.

Work completed July 26, 1921.

Expenditure during 1921, \$14,728.07.

*Mendon-Uxbridge.*

June 8, 1921, contract made with J. H. Fannon of Somerville for the construction of 4,845 feet of State highway in Mendon and 5,500 feet of State highway in Uxbridge, the surface consisting of bituminous macadam 18 feet wide. The proposal amounted to \$109,088.25.

Work completed Nov. 22, 1921.

Expenditure during 1921, \$70,666.73.

*Leicester.*

June 8, 1921, contract made with Charles E. Horne of Millbury for the surfacing of 4,378 feet of State highway, the surface consisting of cement concrete 20 feet wide. The proposal amounted to \$61,058.

Work completed Dec. 20, 1921.

Expenditure during 1921, \$60,292.18.

*Stoughton.*

June 21, 1921, contract made with Carlo Bianchi & Co., Inc., of Framingham for the surfacing of 11,556 feet of State highway, the surface consisting of cement concrete 20 feet wide. The proposal amounted to \$95,364.25.

Work completed Nov. 29, 1921.

Expenditure during 1921, \$83,389.14.

*Lanesborough, New Ashford and Williamstown.*

June 21, 1921, contract made with the Rendle-Stoddard Company of Chelsea for the construction of the 12 reinforced concrete bridges on the State highway in Lanesborough, New Ashford and Williamstown. The proposal amounted to

\$42,005.50. On Sept. 22, 1921, said contractors were notified to discontinue all work under said contract, the chief engineer having certified in writing that the work called for by the contract had been unnecessarily and unreasonably delayed.

Expenditure during 1921, \$45,054.55.

*Watertown.*

June 28, 1921, contract made with Thomas J. McCue of Watertown for the surfacing of 4,486 feet of State highway, the surface consisting of bituminous macadam 27 feet wide. The proposal amounted to \$30,498.30.

Work completed Sept. 27, 1921.

Expenditure during 1921, \$37,432.60.

*Winchester and Woburn.*

July 5, 1921, contract made with Powers Brothers of Brockton for the surfacing of 3.042 miles of State highway, the surface consisting of bituminous macadam varying from 18 to 20 feet in width. The proposal amounted to \$106,098.10.

Work completed Dec. 30, 1921.

Expenditure during 1921, \$102,044.72.

*Middleton and Danvers.*

July 5, 1921, contract made with Fred E. Ellis of Melrose for the construction of 1.9 miles of State highway, the surface consisting of bituminous macadam 18 feet wide. The proposal amounted to \$70,969.50.

Work completed Dec. 20, 1921.

Expenditure during 1921, \$60,663.36.

*Brookfield and West Brookfield.*

July 19, 1921, contract made with the Middlesex Construction Company of Medford for the surfacing of 8,880 feet of State highway, the surface consisting of cement concrete 20 feet wide. The proposal amounted to \$101,555.90.

Work completed Nov. 22, 1921.

Expenditure during 1921, \$95,308.38.

*Winchendon and Templeton.*

July 19, 1921, contract made with the Lane Construction Corporation of Meriden, Conn., for the construction of 5.39 miles of State highway, the surface consisting of bituminous macadam 18 feet wide. The proposal amounted to \$209,028.50.

Work about half completed.

Expenditure during 1921, \$99,120.27.

*Littleton.*

Aug. 2, 1921, contract made with Thomas J. McCue of Watertown for the surfacing of 7,104 feet of State highway, the surface consisting of bituminous macadam 20 feet wide. The proposal amounted to \$62,813.20.

Work completed Nov. 15, 1921.

Expenditure during 1921, \$51,285.74.

*North Adams.*

Aug. 2, 1921, contract made with Fred T. Ley & Co., Inc., of Springfield for the surfacing of 8,650 feet of State highway, the surface consisting of cement concrete 20 feet wide. The proposal amounted to \$70,623.75.

Work completed Dec. 6, 1921.

Expenditure during 1921, \$69,144.11.

*Littleton.*

Aug. 16, 1921, contract made with Thomas J. McCue of Watertown for the surfacing of 8,596 feet of State highway, the surface consisting of bituminous macadam 20 feet wide. The proposal amounted to \$47,174.12.

Work completed Nov. 29, 1921.

Expenditure during 1921, \$52,311.39.

*Lynnfield.*

Aug. 23, 1921, contract made with the Hanscom Construction Company of Boston for the construction of 3,052 feet of State highway on Salem Street, the surface consisting of bitu-

minous macadam varying from 18 to 24 feet in width. The proposal amounted to \$45,941.50.

Work completed Jan. 10, 1922.

Expenditure during 1921, \$17,091.87.

*Egremont.*

Sept. 27, 1921, contract made with D. S. McGrath, Inc., of Adams for the construction of 4,328 feet of State highway, the surface consisting of bituminous macadam 18 feet wide. The proposal amounted to \$36,422.45.

Expenditure during 1921, \$5,321.10.

*Bernardston.*

Oct. 13, 1921, contract made with the Lane Construction Corporation of Meriden, Conn., for the construction of 1,750 feet of State highway, the surface consisting of bituminous macadam 18 feet wide. The proposal amounted to \$14,020.70.

Expenditure during 1921, \$951.79.

*Danvers and Topsfield.*

Nov. 1, 1921, contract made with Thomas J. McCue of Watertown for the construction of 15,889 feet of State highway in Danvers, and 18,547 feet of State highway in Topsfield, on the Newburyport Turnpike, the surface on 8,100 feet consisting of cement concrete 18 feet wide, and the surface on 26,336 feet consisting of bituminous macadam varying from 18 to 24 feet. The proposal amounted to \$273,523.90.

Expenditure during 1921, \$2,577.75.

*Boston.*

Nov. 1, 1921, contract made with J. C. Coleman & Sons of Boston for the construction of 1,412 feet of State highway on Washington Street in the West Roxbury district. This contract provides for the construction of two roadways, one roadway to be surfaced with bituminous concrete and the other with bituminous macadam. The proposal amounted to \$47,308.25.

Expenditure during 1921, \$2,610.35.

# MAINTENANCE OF STATE HIGHWAYS (FROM MOTOR VEHICLE FEES FUND).

Section 13 of chapter 81 of the General Laws provides: —

State highways shall be maintained and kept in good repair and condition by the division at the expense of the commonwealth. The division shall keep all state highways reasonably clear of brush, shall cause suitable shade trees to be planted thereon if practicable, and may establish and maintain watering troughs upon said highways.

The expenditures during the year in various counties were: —

COUNTY.	Amount.
Barnstable . . . . .	\$208,462 67
Berkshire . . . . .	261,881 50
Bristol . . . . .	43,610 49
Dukes . . . . .	28,357 57
Essex . . . . .	82,991 82
Franklin . . . . .	209,382 77
Hampden . . . . .	181,759 72
Hampshire . . . . .	48,005 84
Middlesex . . . . .	400,197 35
Nantucket . . . . .	3,326 44
Norfolk . . . . .	143,586 59
Plymouth . . . . .	82,514 58
Suffolk . . . . .	7,601 11
Worcester . . . . .	550,324 42

Details of the foregoing expenditures follow: —

## *Barnstable County.*

Barnstable . . . . .	\$6,372 14
Bourne . . . . .	11,507 40
Brewster . . . . .	3,372 14
Chatham . . . . .	4,243 24
Dennis . . . . .	2,340 56
Eastham . . . . .	40,349 21
Falmouth . . . . .	9,058 90
Harwich . . . . .	2,101 27
Mashpee . . . . .	2,378 85
Orleans . . . . .	1,638 90

Provincetown . . . . .	\$5,490 37
Sandwich . . . . .	3,217 85
Truro . . . . .	74,522 49
Wellfleet . . . . .	39,002 23
Yarmouth . . . . .	2,867 12

*Berkshire County.*

Adams . . . . .	1,003 33
Becket . . . . .	34,094 98
Cheshire . . . . .	7,382 37
Clarksburg . . . . .	4,435 05
Dalton . . . . .	2,920 15
Egremont . . . . .	4,103 25
Florida . . . . .	8,770 78
Great Barrington . . . . .	5,090 88
Hancock . . . . .	24,158 55
Hinsdale . . . . .	2,286 59
Lanesborough . . . . .	1,210 15
Lee . . . . .	8,565 23
Lenox . . . . .	9,956 43
New Ashford . . . . .	66 27
New Marlborough . . . . .	100 66
North Adams . . . . .	85,197 75
Pittsfield . . . . .	35,059 62
Richmond . . . . .	4,905 06
Savoy . . . . .	3,755 10
Sheffield . . . . .	5,943 85
Stockbridge . . . . .	2,987 69
Washington . . . . .	842 40
Williamstown . . . . .	8,055 10
Windsor . . . . .	990 26

*Bristol County.*

Acushnet . . . . .	1,342 45
Attleboro . . . . .	4,111 51
Berkley . . . . .	531 32
Dartmouth . . . . .	2,049 50
Dighton . . . . .	2,509 25
Easton . . . . .	59 16
Fairhaven . . . . .	1,483 93
Fall River . . . . .	44 47
Freetown . . . . .	1,401 44
Mansfield . . . . .	188 58
North Attleborough . . . . .	1,766 36
Norton . . . . .	1,258 51
Raynham . . . . .	2,495 20

Rehoboth . . . . .	\$5,000 84
Seekonk . . . . .	3,755 51
Somerset . . . . .	3,427 47
Swansea . . . . .	3,845 82
Taunton . . . . .	5,445 46
Westport . . . . .	2,893 71

*Dukes County.*

Chilmark . . . . .	16,414 87
Edgartown . . . . .	345 71
Gay Head . . . . .	1,435 18
Oak Bluffs . . . . .	279 88
Tisbury . . . . .	874 30
West Tisbury . . . . .	9,007 63

*Essex County.*

Amesbury . . . . .	1,692 10
Andover . . . . .	19,854 17
Beverly . . . . .	8,418 66
Danvers . . . . .	284 34
Essex . . . . .	1,985 20
Gloucester . . . . .	3,477 19
Groveland . . . . .	297 30
Hamilton . . . . .	1,062 58
Haverhill . . . . .	3,927 22
Ipswich . . . . .	3,701 02
Lawrence . . . . .	268 14
Lynn . . . . .	3,418 62
Lynnfield . . . . .	98 51
Merrimac . . . . .	2,449 32
Methuen . . . . .	2,277 54
Middleton . . . . .	1,437 78
Newbury . . . . .	4,539 30
Newburyport . . . . .	1,170 05
North Andover . . . . .	4,378 22
Rockport . . . . .	1,147 68
Rowley . . . . .	2,512 79
Salem . . . . .	2,702 63
Salisbury . . . . .	4,294 16
Saugus . . . . .	3,034 05
Swampscott . . . . .	891 78
Topsfield . . . . .	9 75
Wenham . . . . .	1,054 77
West Newbury . . . . .	2,606 95



*Franklin County.*

Ashfield . . . . .	\$1,259 77
Bernardston . . . . .	90,443 07
Buckland . . . . .	3,224 19
Charlemont . . . . .	13,999 71
Colrain . . . . .	1,389 70
Conway . . . . .	4,231 93
Deerfield . . . . .	6,190 15
Erving . . . . .	5,749 56
Gill . . . . .	10 83
Greenfield . . . . .	50,504 25
Montague . . . . .	12,136 35
Northfield . . . . .	3,472 09
Orange . . . . .	7,070 36
Shelburne . . . . .	5,720 06
Sunderland . . . . .	2,117 60
Whately . . . . .	1,863 15

*Hampden County.*

Agawam . . . . .	2,068 12
Blandford . . . . .	3,707 49
Brimfield . . . . .	3,235 04
Chester . . . . .	9,494 89
Chicopee . . . . .	4,581 86
East Longmeadow . . . . .	953 40
Holyoke . . . . .	2,608 99
Monson . . . . .	961 54
Palmer . . . . .	118,735 47
Russell . . . . .	8,873 36
Wales . . . . .	850 18
West Springfield . . . . .	3,025 41
Westfield . . . . .	16,846 29
Wilbraham . . . . .	5,817 68

*Hampshire County,*

Amherst . . . . .	4,311 37
Belchertown . . . . .	1,976 57
Cummington . . . . .	1,290 48
Easthampton . . . . .	1,045 37
Goshen . . . . .	1,773 79
Granby . . . . .	4,871 83
Hadley . . . . .	2,393 67
Hatfield . . . . .	1,500 15
Huntington . . . . .	8,280 09
Northampton . . . . .	1,945 92

South Hadley . . . . .	\$5,714 04
Southampton . . . . .	1,790 86
Ware . . . . .	7,140 43
Williamsburg . . . . .	3,971 27

*Middlesex County.*

Acton . . . . .	11,317 03
Arlington . . . . .	280 80
Ashby . . . . .	2,497 95
Ashland . . . . .	1,973 77
Ayer . . . . .	2,040 25
Bedford . . . . .	1,330 20
Billerica . . . . .	4,790 72
Boxborough . . . . .	1,871 71
Burlington . . . . .	3,026 34
Chelmsford . . . . .	6,292 67
Concord . . . . .	1,863 21
Dracut . . . . .	3,385 76
Framingham . . . . .	2,044 78
Groton . . . . .	1,557 75
Holliston . . . . .	1,922 11
Hudson . . . . .	1,144 79
Lexington . . . . .	2,832 08
Lincoln . . . . .	1,421 30
Littleton . . . . .	143,459 06
Lowell . . . . .	4,797 67
Malden . . . . .	26 65
Marlborough . . . . .	4,450 90
Medford . . . . .	603 26
Melrose . . . . .	443 98
Natick . . . . .	1,556 03
Newton . . . . .	158 35
North Reading . . . . .	2,149 03
Pepperell . . . . .	2,576 99
Reading . . . . .	5,535 64
Shirley . . . . .	1,450 88
Somerville . . . . .	479 95
Stoneham . . . . .	2,627 29
Sudbury . . . . .	1,573 94
Tewksbury . . . . .	1,803 78
Townsend . . . . .	3,645 48
Tyngsborough . . . . .	6,382 70
Waltham . . . . .	23 34
Watertown . . . . .	40,825 21
Wayland . . . . .	1,162 46

Westford . . . . .	\$7,157 72
Weston . . . . .	981 15
Wilmington . . . . .	1,341 25
Winchester . . . . .	45,461 83
Woburn . . . . .	67,929 59

*Nantucket County.*

Nantucket . . . . .	3,326 44
---------------------	----------

*Norfolk County.*

Avon . . . . .	1,112 80
Bellingham . . . . .	1,258 51
Braintree . . . . .	4,921 70
Canton . . . . .	3,695 69
Cohasset . . . . .	313 43
Dedham . . . . .	1,845 70
Dover . . . . .	1,469 68
Foxborough . . . . .	795 78
Franklin . . . . .	1,208 89
Holbrook . . . . .	696 62
Milton . . . . .	641 59
Needham . . . . .	970 09
Norfolk . . . . .	1,332 97
Norwood . . . . .	2,330 58
Plainville . . . . .	3,230 25
Quincy . . . . .	1,796 39
Randolph . . . . .	2,718 75
Sharon . . . . .	338 69
Stoughton . . . . .	91,738 62
Walpole . . . . .	4,779 37
Wellesley . . . . .	382 26
Westwood . . . . .	1,529 63
Weymouth . . . . .	8,569 87
Wrentham . . . . .	5,908 73

*Plymouth County.*

Abington . . . . .	4,088 93
Bridgewater . . . . .	5,544 07
Brockton . . . . .	2,225 15
Duxbury . . . . .	4,105 44
East Bridgewater . . . . .	2,476 18
Hanover . . . . .	4,472 32
Hingham . . . . .	2,910 95
Kingston . . . . .	2,575 83

Lakeville . . . . .	\$3,645 08
Marion . . . . .	1,070 79
Marshfield . . . . .	6,616 27
Mattapoisett . . . . .	1,250 14
Middleborough . . . . .	6,629 62
Norwell . . . . .	141 80
Pembroke . . . . .	3,114 07
Plymouth . . . . .	8,647 43
Rochester . . . . .	1,878 33
Rockland . . . . .	4,977 86
Scituate . . . . .	6,487 20
Wareham . . . . .	6,001 97
West Bridgewater . . . . .	1,742 27
Whitman . . . . .	1,912 88

*Suffolk County.*

Boston . . . . .	937 69
Chelsea . . . . .	1,768 47
Revere . . . . .	4,894 95

*Worcester County.*

Ashburnham . . . . .	7,040 22
Athol . . . . .	2,443 20
Auburn . . . . .	4,222 51
Barre . . . . .	4,154 01
Blackstone . . . . .	2,247 56
Brookfield . . . . .	32,980 86
Charlton . . . . .	9,103 53
Douglas . . . . .	1,409 60
Dudley . . . . .	3,290 02
East Brookfield . . . . .	98,383 67
Fitchburg . . . . .	1,595 51
Gardner . . . . .	1,924 83
Grafton . . . . .	6,621 76
Hardwick . . . . .	1,098 64
Harvard . . . . .	1,512 19
Holden . . . . .	3,779 75
Hopedale . . . . .	279 68
Lancaster . . . . .	2,540 48
Leicester . . . . .	95,591 64
Leominster . . . . .	4,076 67
Lunenburg . . . . .	62,420 34
Mendon . . . . .	722 00
Milford . . . . .	3,924 02

Millbury . . . . .	\$3,184 54
Millville . . . . .	2,698 60
New Braintree . . . . .	85 55
North Brookfield . . . . .	2,212 25
Northborough . . . . .	3,115 13
Northbridge . . . . .	1,125 01
Oakham . . . . .	1,146 47
Oxford . . . . .	4,429 79
Paxton . . . . .	3,584 95
Petersham . . . . .	4,860 79
Phillipston . . . . .	1,550 10
Princeton . . . . .	1,439 27
Royalston . . . . .	20 79
Rutland . . . . .	2,164 48
Shrewsbury . . . . .	7,670 32
Southborough . . . . .	1,163 46
Southbridge . . . . .	1,324 68
Spencer . . . . .	34,053 46
Sterling . . . . .	5,584 55
Sturbridge . . . . .	2,261 42
Sutton . . . . .	3,054 96
Templeton . . . . .	4,666 97
Upton . . . . .	2,133 98
Uxbridge . . . . .	4,242 40
Warren . . . . .	4,407 33
Webster . . . . .	1,192 64
West Boylston . . . . .	1,546 64
West Brookfield . . . . .	73,453 94
Westborough . . . . .	1,543 68
Westminster . . . . .	5,807 29
Winchendon . . . . .	8,533 53
Worcester . . . . .	4,702 47

---

Total . . . . .	<sup>1</sup> \$2,252,002 87
-----------------	-----------------------------

<sup>1</sup> To this amount should be added items totalling \$13,374.36 for tree planting and traffic census.

# MAINTENANCE OF STATE HIGHWAYS (FROM REVENUE APPROPRIATIONS).

(Section 13 of chapter 81 of the General Laws.<sup>1</sup>)

The expenditures during the year in various counties were: —

COUNTY.	Amount.
Barnstable . . . . .	\$17,565 05
Berkshire . . . . .	35,359 20
Bristol . . . . .	30,467 51
Dukes . . . . .	2,679 97
Essex . . . . .	52,438 19
Franklin . . . . .	16,925 33
Hampden . . . . .	24,398 60
Hampshire . . . . .	13,719 39
Middlesex . . . . .	44,349 36
Nantucket . . . . .	1,802 23
Norfolk . . . . .	27,133 02
Plymouth . . . . .	18,176 60
Suffolk . . . . .	5,785 28
Worcester . . . . .	76,897 27

Details of the foregoing expenditures follow: —

## *Barnstable County.*

Barnstable . . . . .	\$3,177 51
Bourne . . . . .	1,329 25
Brewster . . . . .	847 25
Chatham . . . . .	564 20
Dennis . . . . .	1,168 39
Eastham . . . . .	24 87
Falmouth . . . . .	1,962 78
Harwich . . . . .	1,664 74
Mashpee . . . . .	787 37
Orleans . . . . .	472 97
Provincetown . . . . .	1,693 23
Sandwich . . . . .	889 88
Truro . . . . .	1,135 93
Wellfleet . . . . .	518 33
Yarmouth, North } . . . . .	1,328 35
Yarmouth, South }	

<sup>1</sup> Printed on page 28.

*Berkshire County.*

Adams . . . . .	\$664 77
Becket . . . . .	2,584 61
Cheshire . . . . .	2,098 54
Clarksburg . . . . .	1,084 00
Dalton . . . . .	1,088 85
Egremont . . . . .	641 37
Florida . . . . .	4,220 20
Great Barrington . . . . .	1,091 22
Hancock . . . . .	148 94
Hinsdale . . . . .	316 55
Lanesborough . . . . .	736 50
Lee . . . . .	3,925 78
Lenox . . . . .	3,593 20
North Adams . . . . .	5,160 43
Pittsfield . . . . .	2,449 07
Richmond . . . . .	593 25
Savoy . . . . .	671 12
Sheffield . . . . .	1,738 35
Stockbridge . . . . .	1,208 58
Washington . . . . .	214 70
Williamstown . . . . .	926 37
Windsor . . . . .	202 80

*Bristol County.*

Acushnet . . . . .	1,074 02
Attleboro . . . . .	860 97
Berkley . . . . .	1,100 13
Dartmouth . . . . .	1,718 02
Dighton . . . . .	1,671 49
Easton . . . . .	166 00
Fairhaven . . . . .	757 46
Fall River . . . . .	23 10
Freetown . . . . .	260 70
Mansfield . . . . .	489 49
North Attleborough . . . . .	1,016 05
Norton . . . . .	2,888 34
Raynham . . . . .	1,016 56
Rehoboth . . . . .	4,067 48
Seekonk . . . . .	2,161 88
Somerset . . . . .	3,679 33
Swansea . . . . .	4,375 24
Taunton . . . . .	2,260 07
Westport . . . . .	881 18

*Dukes County.*

Chilmark . . . . .	\$665 05
Edgartown . . . . .	276 06
Gay Head . . . . .	443 60
Oak Bluffs . . . . .	1,093 91
Tisbury . . . . .	41 10
West Tisbury . . . . .	160 25

*Essex County.*

Amesbury . . . . .	2,015 25
Andover . . . . .	3,512 65
Beverly . . . . .	1,948 84
Danvers . . . . .	49 60
Essex . . . . .	456 90
Gloucester . . . . .	579 97
Groveland . . . . .	1,370 04
Hamilton . . . . .	353 65
Haverhill . . . . .	5,143 69
Ipswich . . . . .	4,679 52
Lawrence . . . . .	542 68
Lynn . . . . .	3,943 16
Merrimac . . . . .	2,196 43
Methuen . . . . .	2,731 15
Middleton . . . . .	46 39
Newbury . . . . .	3,436 01
Newburyport . . . . .	754 90
North Andover . . . . .	7,666 60
Rockport . . . . .	1,004 23
Rowley . . . . .	2,311 06
Salem . . . . .	649 92
Salisbury . . . . .	3,416 89
Saugus . . . . .	1,953 68
Swampscott . . . . .	190 50
Wenham . . . . .	290 03
West Newbury . . . . .	1,194 45

*Franklin County.*

Ashfield . . . . .	197 95
Bernardston . . . . .	832 35
Buckland . . . . .	1,015 60
Charlemont . . . . .	3,973 07
Colrain . . . . .	121 45
Conway . . . . .	594 33
Deerfield . . . . .	1,962 17
Erving . . . . .	1,216 19
Greenfield . . . . .	698 16



Montague . . . . .	\$1,599 36
Northfield . . . . .	792 61
Orange . . . . .	1,558 19
Shelburne . . . . .	1,425 15
Sunderland . . . . .	368 15
Whately . . . . .	570 60

*Hampden County.*

Agawam . . . . .	1,813 97
Blandford . . . . .	1,074 10
Brimfield . . . . .	1,055 95
Chester . . . . .	2,536 83
Chicopee . . . . .	1,639 01
East Longmeadow . . . . .	1,366 76
Holyoke . . . . .	926 85
Monson . . . . .	299 98
Palmer . . . . .	4,421 81
Russell . . . . .	3,232 24
Wales . . . . .	859 44
West Springfield . . . . .	439 60
Westfield . . . . .	3,290 80
Wilbraham . . . . .	1,441 26

*Hampshire County.*

Amherst . . . . .	1,326 69
Belchertown . . . . .	329 17
Cummington . . . . .	407 23
Easthampton . . . . .	187 56
Goshen . . . . .	328 80
Granby . . . . .	1,612 40
Hadley . . . . .	1,276 72
Hatfield . . . . .	255 27
Huntington . . . . .	2,773 99
Northampton . . . . .	743 95
Southampton . . . . .	25 86
South Hadley . . . . .	1,863 07
Ware . . . . .	1,508 36
Williamsburg . . . . .	1,080 32

*Middlesex County.*

Acton . . . . .	1,970 11
Arlington . . . . .	144 71
Ashby . . . . .	1,339 03
Ashland . . . . .	1,347 32
Ayer . . . . .	538 74
Bedford . . . . .	480 01

Billerica . . . . .	\$1,504 15
Boxborough . . . . .	1,092 45
Burlington . . . . .	1,539 48
Chelmsford . . . . .	4,519 73
Concord . . . . .	615 42
Dracut . . . . .	1,244 58
Framingham . . . . .	3,038 56
Groton . . . . .	516 66
Holliston . . . . .	1,464 28
Hudson . . . . .	431 82
Lexington . . . . .	571 84
Lincoln . . . . .	237 38
Littleton . . . . .	2,236 97
Lowell . . . . .	2,407 88
Malden . . . . .	18 50
Marlborough . . . . .	1,982 73
Medford . . . . .	166 83
Melrose . . . . .	103 15
Natick . . . . .	617 06
Newton . . . . .	71 56
North Reading . . . . .	377 31
Pepperell . . . . .	753 72
Reading . . . . .	446 83
Shirley . . . . .	340 13
Somerville . . . . .	312 96
Stoneham . . . . .	483 50
Sudbury . . . . .	242 17
Tewksbury . . . . .	328 36
Townsend . . . . .	982 89
Tyngsborough . . . . .	2,573 46
Watertown . . . . .	303 14
Wayland . . . . .	430 43
Westford . . . . .	2,763 45
Weston . . . . .	495 07
Wilmington . . . . .	709 95
Winchester . . . . .	1,351 48
Woburn . . . . .	1,253 06

*Nantucket County.*

Nantucket . . . . .	1,802 23
---------------------	----------

*Norfolk County.*

Avon . . . . .	304 61
Bellingham . . . . .	1,952 04
Braintree . . . . .	1,024 50
Canton . . . . .	1,461 29

Cohasset . . . . .	\$185 42
Dedham . . . . .	233 45
Dover . . . . .	468 95
Foxborough . . . . .	974 23
Franklin . . . . .	3,349 20
Holbrook . . . . .	684 30
Milton . . . . .	369 08

*Norfolk County.*

Needham . . . . .	604 15
Norfolk . . . . .	355 52
Norwood . . . . .	1,604 61
Plainville . . . . .	2,397 10
Quincy . . . . .	1,188 54
Randolph . . . . .	607 14
Sharon . . . . .	222 32
Stoughton . . . . .	977 24
Walpole . . . . .	1,635 37
Wellesley . . . . .	272 15
Westwood . . . . .	1,151 06
Weymouth . . . . .	2,078 38
Wrentham . . . . .	3,032 37

*Plymouth County.*

Abington . . . . .	637 71
Bridgewater . . . . .	1,263 16
Brockton . . . . .	462 91
Duxbury . . . . .	782 60
East Bridgewater . . . . .	574 57
Hanover . . . . .	1,019 52
Hingham . . . . .	339 99
Kingston . . . . .	722 96
Lakeville . . . . .	1,289 00
Marion . . . . .	712 91
Marshfield . . . . .	1,207 24
Mattapoisett . . . . .	419 82
Middleborough . . . . .	1,999 75
Pembroke . . . . .	564 74
Plymouth . . . . .	1,310 77
Rochester . . . . .	855 59
Rockland . . . . .	448 20
Scituate . . . . .	677 88
Wareham . . . . .	2,088 01
West Bridgewater . . . . .	308 52
Whitman . . . . .	490 75

*Suffolk County.*

Boston . . . . .	\$890 92
Chelsea . . . . .	2,117 17
Revere . . . . .	2,777 19

*Worcester County.*

Athol . . . . .	833 00
Auburn . . . . .	4,126 25
Ashburnham . . . . .	3,258 36
Barre . . . . .	1,837 88
Blackstone . . . . .	1,592 70
Brookfield . . . . .	1,446 11
Charlton . . . . .	3,584 57
Douglas . . . . .	520 77
Dudley . . . . .	1,437 61
East Brookfield . . . . .	374 31
Fitchburg . . . . .	605 61
Gardner . . . . .	673 44
Grafton . . . . .	3,916 95
Hardwick . . . . .	1,299 62
Harvard . . . . .	829 80
Holden . . . . .	2,161 69
Hopedale . . . . .	426 83
Lancaster . . . . .	651 42
Leicester . . . . .	3,804 14
Leominster . . . . .	2,120 43
Lunenburg . . . . .	2,433 67
Mendon . . . . .	444 84
Milford . . . . .	1,680 90
Millbury . . . . .	867 64
Millville . . . . .	1,128 11
New Braintree . . . . .	123 40
North Brookfield . . . . .	786 51
Northborough . . . . .	1,047 67
Northbridge . . . . .	240 74
Oakham . . . . .	559 57
Oxford . . . . .	1,440 58
Paxton . . . . .	1,003 50
Petersham . . . . .	1,692 15
Phillipston . . . . .	139 66
Princeton . . . . .	312 83
Rutland . . . . .	899 90
Shrewsbury . . . . .	1,521 03
Southborough . . . . .	384 72
Southbridge . . . . .	174 32
Spencer . . . . .	757 65

Sterling . . . . .	\$3,173 60
Sturbridge . . . . .	339 31
Sutton . . . . .	1,138 97
Templeton . . . . .	2,084 29
Upton . . . . .	2,113 14
Uxbridge . . . . .	2,061 89
Warren . . . . .	832 77
Webster . . . . .	652 44
Westborough . . . . .	544 03
West Boylston . . . . .	788 65
West Brookfield . . . . .	664 35
Westminster . . . . .	3,505 00
Winchendon . . . . .	3,792 84
Worcester . . . . .	2,064 61
<hr/>	
Total . . . . .	\$367,697 00

The amounts expended for maintenance of State highways, the average expenditure per mile in 1921 for maintenance, the average cost per mile per year for each municipality, the number of miles under maintenance, and the amounts to be assessed upon municipalities for maintenance under 1921 expenditures are shown in the following table: —

## DEPARTMENT OF PUBLIC WORKS.

TOWN OR CITY.	AMOUNTS EXPENDED.					
	REVENUE APPROPRIATIONS.			MOTOR VEHICLE FEES FUND.		
	Total to 1921.	During 1921.	Total.	Total to 1921.	During 1921.	Total.
Abington . . . . .	\$9,760 56	\$637 71	\$10,398 27	\$34,444 18	\$4,088 93	\$38,533 11
Acton . . . . .	23,924 31	1,970 11	25,894 42	209,256 41	11,317 03	220,573 44
Acushnet . . . . .	13,671 93	1,074 02	14,745 95	40,652 25	1,342 45	41,994 70
Adams . . . . .	8,591 98	664 77	9,256 75	7,346 11	1,003 33	8,349 44
Agawam . . . . .	19,471 28	1,813 97	20,785 25	19,890 61	2,068 12	21,958 73
Amesbury . . . . .	14,534 81	2,015 25	16,550 06	8,771 68	1,692 10	10,463 78
Amherst . . . . .	7,795 22	1,326 69	9,121 91	12,657 21	4,311 37	16,968 58
Andover . . . . .	28,123 67	3,512 65	31,636 32	91,397 52	19,854 17	111,251 69
Arlington . . . . .	537 92	144 71	682 63	608 75	280 80	889 55
Ashburnham . . . . .	16,628 54	3,258 36	19,886 90	44,540 91	7,040 22	51,581 13
Ashby . . . . .	16,542 37	1,339 03	17,881 40	51,223 36	2,497 95	53,721 31
Ashfield . . . . .	4,895 35	197 95	5,093 30	8,884 58	1,259 77	10,144 35
Ashland . . . . .	7,822 57	1,347 32	9,169 89	6,527 65	1,973 77	8,501 42
Athol . . . . .	17,674 76	833 00	18,507 76	45,250 29	2,443 20	47,693 49
Attleboro . . . . .	15,252 53	860 97	16,113 50	86,616 09	4,111 51	90,727 60
Auburn . . . . .	44,682 82	4,126 25	48,809 07	74,133 78	4,222 51	78,356 29
Avon . . . . .	716 59	304 61	1,021 20	2,330 05	1,112 80	3,442 85
Ayer . . . . .	3,438 68	538 74	3,977 42	4,827 94	2,040 25	6,868 19
Barnstable . . . . .	31,682 22	3,177 51	34,859 73	42,311 83	6,372 14	48,683 97
Barre . . . . .	17,718 51	1,837 88	19,556 39	29,515 57	4,154 01	33,669 58
Becket . . . . .	41,786 78	2,584 61	44,371 39	242,808 81	34,094 98	276,903 79
Bedford . . . . .	6,029 73	480 01	6,509 74	8,018 18	1,330 20	9,348 38
Belchertown . . . . .	5,767 53	329 17	6,096 70	6,795 41	1,976 57	8,771 98
Bellingham . . . . .	6,320 33	1,952 04	8,272 37	8,682 76	1,258 51	9,941 27
Berkley . . . . .	2,771 42	1,100 13	3,271 55	2,603 11	531 32	3,134 43
Bernardston . . . . .	9,881 35	832 35	10,713 70	50,178 42	90,443 07	140,621 49
Beverly . . . . .	59,056 25	1,948 84	61,005 09	161,319 33	8,418 66	169,737 99
Billerica . . . . .	4,998 77	1,504 15	6,502 92	5,760 62	4,790 72	10,551 34
Blackstone . . . . .	14,492 89	1,392 70	16,085 59	13,570 70	2,247 65	15,818 35
Blandford . . . . .	2,079 06	1,074 10	3,153 16	9,863 15	3,707 49	13,570 64
Boston . . . . .	12,901 81	890 92	13,792 73	75,256 15	937 69	76,193 84
Bourne . . . . .	18,930 09	1,329 25	20,259 34	48,798 44	11,507 40	60,305 84
Boxborough . . . . .	9,854 34	1,092 45	10,946 79	12,072 53	1,871 71	13,944 24
Braintree . . . . .	5,071 31	1,024 50	6,095 81	14,226 27	4,921 70	19,147 97
Brewster . . . . .	18,995 72	847 25	19,842 97	44,224 18	3,372 14	47,596 32
Bridgewater . . . . .	9,450 25	1,263 16	10,713 41	31,928 70	5,544 07	37,472 77
Brimfield . . . . .	7,503 72	1,055 95	8,559 67	17,648 96	3,235 04	20,884 00
Brockton . . . . .	16,909 73	462 91	17,372 64	31,381 43	2,225 15	33,606 58
Brookfield . . . . .	21,005 92	1,446 11	22,452 03	45,104 89	32,980 86	78,085 75
Buckland . . . . .	18,866 47	1,015 60	19,882 07	47,242 40	3,224 19	50,466 59
Burlington . . . . .	14,259 99	1,539 48	15,799 47	13,985 38	3,026 34	17,011 72
Canton . . . . .	15,474 85	1,461 29	16,936 14	56,810 69	3,695 69	60,506 38
Charlemont . . . . .	20,704 07	3,973 07	24,677 14	39,094 05	13,999 71	53,093 76
Charlton . . . . .	23,643 80	3,584 57	27,228 37	30,335 11	9,103 53	39,438 64
Chatham . . . . .	15,696 84	564 20	16,261 04	35,471 98	4,243 24	39,715 22
Chelmsford . . . . .	26,634 13	4,519 73	31,153 86	34,103 76	6,292 67	40,396 43
Chelsea . . . . .	9,624 06	2,117 17	11,741 23	20,435 07	1,768 47	22,203 54
Cheshire . . . . .	18,611 24	2,098 54	20,709 78	20,692 64	7,382 37	28,075 01
Chester . . . . .	21,342 56	2,536 83	23,879 39	32,683 50	9,494 89	42,178 39
Chicopee . . . . .	30,353 83	1,639 01	31,992 84	54,149 99	4,581 86	58,731 85
Chilmark . . . . .	10,347 86	665 05	11,012 91	20,399 17	16,414 57	36,814 04
Clarksburg . . . . .	6,873 94	1,084 00	7,962 94	9,629 52	4,435 05	14,064 57
Cohasset . . . . .	8,724 08	185 42	8,909 50	46,526 47	313 43	46,839 90
Colrain . . . . .	5,001 42	121 45	5,122 87	6,510 86	1,389 70	7,900 56
Concord . . . . .	23,152 24	615 42	23,767 66	116,590 83	1,863 21	118,454 04
Conway . . . . .	1,664 18	594 33	2,258 51	4,350 72	4,231 93	8,582 65
Cummington . . . . .	-	407 23	407 23	466 23	1,290 48	1,756 71
Dalton . . . . .	12,726 13	1,088 85	13,814 98	11,942 58	2,920 15	14,862 73
Danvers . . . . .	399 91	49 60	449 51	323 06	284 34	607 40
Dartmouth . . . . .	19,333 29	1,718 02	21,051 31	95,580 09	2,049 50	97,629 59
Dedham . . . . .	3,961 42	233 45	4,194 87	6,992 19	1,845 70	8,837 89
Deerfield . . . . .	34,532 05	1,962 17	36,494 22	74,626 08	6,190 15	80,816 23
Dennis . . . . .	27,626 23	1,168 39	28,794 62	40,441 83	2,340 56	42,782 39
Dighton . . . . .	8,449 39	1,671 49	10,120 88	49,335 17	2,509 25	51,844 42
Douglas . . . . .	6,824 35	520 77	7,345 12	12,847 52	1,409 60	14,257 12
Dover . . . . .	8,470 43	468 95	8,939 38	6,952 87	1,469 68	8,422 55
Dracut . . . . .	7,803 37	1,244 58	9,047 95	10,847 70	3,385 75	14,233 46
Dudley . . . . .	11,865 43	1,437 61	13,303 04	16,962 21	3,290 02	20,252 23
Duxbury . . . . .	13,954 96	782 60	14,737 56	51,862 55	4,105 44	55,967 99
East Bridgewater . . . . .	780 17	574 57	1,354 74	27,274 81	2,476 18	29,750 99
East Brookfield . . . . .	-	374 31	374 31	-	98,383 67	98,383 67

Total expended.	EXPENDED PER MILE IN 1921.			Total Cost per Mile per Year.	Length under Main- tenance (Miles).	Amount to be assessed on Cities and Towns.
	From Revenue Appro- priation.	From Motor Vehicle Fees Fund.	Total.			
\$48,931 38	\$107 36	\$688 37	\$795 73	\$614 75	5.940	\$1,188 00
246,467 86	250 46	1,438 73	1,689 19	1,967 17	7.866	1,573 20
56,740 65	233 33	291 65	524 98	774 31	4.603	460 30
17,606 19	327 80	494 74	822 54	536 26	2.028	834 05
42,743 98	454 29	517 94	972 23	762 78	3.993	798 60
27,013 84	611 61	513 54	1,125 15	483 95	3.295	1,853 68
26,090 49	188 02	611 02	799 04	605 56	7.056	2,819 03
142,888 01	806 95	4,561 03	5,367 98	1,556 61	4.353	5,723 09
1,572 18	111 57	216 50	328 07	606 08	1.297	212 76
71,468 03	530 07	1,145 31	1,675 38	2,322 58	6.147	614 70
71,602 71	163 84	305 63	469 47	672 43	8.173	408 65
15,237 65	123 10	783 44	906 54	409 93	1.608	160 80
17,671 31	421 30	617 19	1,038 49	394 11	3.198	319 80
66,201 25	149 23	437 69	586 92	950 78	5.582	1,638 10
106,841 10	254 05	1,213 19	1,467 24	1,729 66	3.389	2,486 24
127,165 36	778 69	796 85	1,575 54	1,132 93	5.299	1,059 80
4,464 05	186 08	679 78	865 86	504 92	1.637	163 70
10,845 61	154 90	586 62	741 52	558 70	3.478	695 60
83,543 70	160 18	321 22	481 40	415 82	19.337	4,774 83
53,225 97	303 18	685 25	988 43	773 39	6.062	1,212 40
321,275 18	145 87	1,924 31	2,070 18	2,269 75	17.718	885 90
15,858 12	291 27	807 16	1,098 43	505 03	1.648	329 60
14,868 68	101 97	612 32	714 29	315 81	3.228	322 80
18,213 64	613 85	395 76	1,009 61	358 56	3.180	318 00
7,005 98	874 51	422 35	1,296 86	454 31	1.258	62 90
151,335 19	94 83	10,304 55	10,399 38	2,730 10	8.777	438 85
230,743 08	343 05	1,481 90	1,824 95	2,126 80	5.681	3,491 83
17,054 26	363 86	804 89	1,168 75	717 48	5.952	3,147 44
31,903 94	768 68	1,084 77	1,853 45	1,053 10	2.072	414 40
16,723 80	259 88	897 04	1,156 92	1,103 59	4.133	206 65
89,986 57	638 19	671 70	1,309 89	5,181 17	1.396	914 31
80,565 18	103 33	8,945 42	9,048 75	534 35	12.864	4,840 80
24,891 03	329 95	565 30	895 25	414 09	3.311	165 55
25,243 78	171 67	824 68	996 35	714 47	5.968	2,973 10
67,439 29	108 33	431 16	539 49	397 65	7.821	391 05
48,186 18	278 17	1,220 89	1,499 06	802 97	4.541	3,403 62
29,443 67	266 18	815 48	1,081 66	349 24	3.967	198 35
50,979 22	122 14	587 11	709 25	710 31	3.790	1,344 03
100,537 78	814 70	18,580 76	19,395 46	1,342 36	1.775	88 75
70,348 66	235 91	748 94	984 85	752 55	4.305	861 00
32,811 19	405 23	796 61	1,201 84	520 11	3.799	379 90
77,442 52	335 93	849 58	1,185 51	1,647 82	4.350	2,578 49
77,770 90	333 34	1,174 57	1,507 91	1,057 17	11.919	596 10
66,667 01	345 47	877 36	1,222 83	567 82	10.376	1,003 00
55,976 26	78 73	592 14	670 87	486 04	7.166	1,433 20
71,550 29	628 79	875 44	1,504 23	725 30	7.188	5,406 20
33,944 77	2,207 69	1,844 08	4,051 77	1,304 71	.959	1,918 00
48,784 79	314 62	1,106 80	1,421 42	553 26	6.670	333 50
66,057 78	383 44	1,435 14	1,818 58	682 66	6.616	661 60
90,724 69	414 52	1,158 79	1,573 31	1,356 77	3.954	3,110 43
47,526 95	85 38	2,107 44	2,192 82	517 46	7.789	389 45
22,027 51	376 91	1,542 09	1,919 00	982 75	2.876	143 80
55,749 40	81 32	137 47	218 79	1,157 80	2.280	249 42
13,023 43	56 94	651 52	708 46	299 43	2.133	213 30
142,221 70	146 88	444 68	591 56	1,916 71	4.190	1,239 33
10,841 16	193 34	1,376 69	1,570 03	1,113 74	3.074	153 70
2,163 94	66 58	211 00	277 58	1,135 33	6.116	305 80
28,677 71	379 26	1,017 12	1,396 38	502 73	2.871	531 40
1,056 91	16 87	96 71	113 58	205 50	2.940	166 97
118,580 90	370 10	441 51	811 61	1,348 23	4.642	1,883 76
13,032 76	99 17	784 07	883 24	433 61	2.354	1,039 58
117,310 45	161 26	508 78	669 98	818 51	12.168	2,433 60
71,577 01	155 83	312 16	467 99	439 18	7.498	749 80
61,965 30	274 06	411 42	685 48	817 76	6.099	1,219 40
21,602 24	245 07	663 34	908 41	590 01	2.125	425 00
17,361 93	215 01	673 86	888 87	556 49	2.181	436 20
23,281 41	218 23	593 68	811 91	428 27	5.703	1,140 60
33,555 27	316 59	724 51	1,041 10	817 11	4.541	908 20
70,705 55	87 76	460 41	548 17	590 69	8.917	1,783 40
31,105 73	152 57	657 50	810 07	2,880 69	3.766	753 20
98,757 98	104 24	27,397 29	27,501 53	15,606 50	3.591	179 55

## DEPARTMENT OF PUBLIC WORKS.

TOWN OR CITY.	AMOUNTS EXPENDED.					
	REVENUE APPROPRIATIONS.			MOTOR VEHICLE FEES FUND.		
	Total to 1921.	During 1921.	Total.	Total to 1921.	During 1921.	Total.
East Longmeadow	\$7,279 70	\$1,366 76	\$8,646 46	\$9,206 38	\$953 40	\$10,159 78
Eastham	11,873 32	24 87	11,898 19	131,154 84	40,349 21	171,504 05
Easthampton	8,476 88	187 56	8,664 44	27,383 32	1,045 37	28,428 69
Easton	5,156 01	166 00	5,322 01	22,332 03	59 16	22,391 19
Edgartown	7,420 86	276 06	7,696 92	3,459 45	345 71	3,805 16
Egremont	2,605 23	641 37	3,246 60	11,228 93	4,103 25	15,332 18
Erving	18,670 68	1,216 19	19,886 87	56,640 70	5,749 56	62,390 26
Essex	6,806 38	456 90	7,263 28	5,847 84	1,985 20	7,833 04
Fairhaven	3,358 05	757 46	4,115 51	22,182 66	1,483 93	23,666 59
Fall River	66 30	23 10	89 40	179 58	44 47	224 05
Falmouth	41,637 69	1,962 78	43,600 47	88,584 02	9,058 90	97,642 92
Fitchburg	16,286 75	605 61	16,892 36	86,503 67	1,595 51	88,099 18
Florida	24,586 10	4,220 20	28,806 30	49,569 29	8,770 78	58,340 07
Foxborough	8,195 04	974 23	9,169 27	26,221 13	795 78	27,016 91
Framingham	16,146 46	3,038 56	19,185 02	13,796 27	2,044 78	15,841 05
Franklin	10,261 35	3,349 20	13,610 55	10,588 14	1,208 89	11,797 03
Freetown	8,499 79	260 70	8,760 49	50,164 83	1,401 44	51,566 27
Gardner	10,858 78	773 44	11,532 22	45,633 68	1,924 83	47,558 51
Gay Head	4,143 79	443 60	4,587 39	6,912 41	1,435 18	8,347 59
Gill	71 50	-	71 50	109 41	10 83	120 24
Gloucester	56,117 04	579 97	56,697 01	43,162 38	3,477 19	46,639 57
Goshen	9,430 61	328 80	9,759 41	19,783 72	1,773 79	21,557 51
Grafton	21,234 16	3,916 95	25,151 11	24,056 36	6,621 76	30,678 12
Granby	15,390 23	1,612 40	17,002 63	15,447 95	4,871 83	20,319 78
Great Barrington	20,990 61	1,091 22	22,081 83	43,074 38	5,090 88	48,165 26
Greenfield	9,184 93	698 16	9,883 09	71,939 69	50,504 25	122,443 94
Groton	3,867 52	516 66	4,384 18	5,784 04	1,557 75	7,341 79
Groveland	8,187 04	1,370 04	9,557 08	9,318 48	297 30	9,615 78
Hadley	21,838 58	1,276 72	23,115 30	50,027 31	2,393 67	52,420 98
Hamilton	14,281 69	353 65	14,635 34	58,162 04	1,062 58	59,224 62
Hancock	49,045 90	148 94	49,194 84	173,324 34	24,158 55	197,482 89
Hanover	4,966 47	1,019 52	5,985 99	14,058 93	4,472 32	18,531 25
Hardwick	3,446 47	1,299 62	4,746 09	3,621 86	1,098 64	4,720 50
Harvard	6,071 85	829 80	6,901 65	8,304 41	1,512 19	9,816 60
Harwich	14,792 34	1,664 74	16,457 08	39,801 64	2,101 27	41,902 91
Hatfield	8,183 86	255 27	8,439 13	70,345 76	1,500 15	71,845 91
Haverhill	33,974 28	5,143 69	39,117 97	22,080 13	3,927 22	26,007 35
Hingham	10,624 87	339 99	10,964 86	50,494 44	2,910 95	53,405 39
Hinsdale	2,724 98	316 55	3,041 53	3,643 69	2,286 59	5,930 28
Holbrook	4,786 48	684 30	5,470 78	7,670 74	696 62	8,367 36
Holden	25,405 63	2,161 69	27,567 32	27,716 90	3,779 75	31,496 65
Holliston	8,485 58	1,464 28	9,949 86	9,876 74	1,922 11	11,798 85
Holyoke	9,700 25	926 85	10,627 10	45,946 42	2,608 99	48,555 41
Hopedale	291 90	426 83	718 73	582 22	279 68	861 90
Hudson	4,103 72	431 82	4,535 54	3,237 61	1,144 79	4,382 40
Huntington	16,983 40	2,773 99	19,757 39	17,306 46	8,280 09	25,586 55
Ipswich	22,331 97	4,679 52	27,011 49	75,951 16	3,701 02	79,652 18
Kingston	2,909 35	722 96	3,632 31	6,269 80	2,575 83	8,845 63
Lakeville	11,407 11	1,289 00	12,696 11	54,002 89	3,645 08	57,647 97
Lancaster	5,851 25	651 42	6,502 67	5,496 11	2,540 48	8,036 59
Lanesborough	5,766 01	736 50	6,502 51	5,958 58	1,210 15	7,168 73
Lawrence	7,075 29	542 68	7,617 97	22,192 95	268 14	22,461 09
Lee	39,228 28	3,925 78	43,154 06	33,126 82	8,565 23	41,692 05
Leicester	48,214 90	3,804 14	52,019 04	107,456 89	95,591 64	203,048 53
Lenox	57,105 66	3,593 20	60,698 86	57,534 44	9,956 43	67,490 87
Leominster	10,270 01	2,120 43	12,390 44	8,790 98	4,076 67	12,867 65
Lexington	25,933 15	571 84	26,504 99	114,402 07	2,832 08	117,234 15
Lincoln	11,988 41	237 38	12,225 79	69,183 18	1,421 30	70,604 48
Littleton	16,641 88	2,236 97	18,878 85	84,204 65	143,459 06	227,663 71
Lowell	28,895 39	2,407 88	31,303 27	25,163 71	4,797 67	29,961 38
Lunenburg	22,691 88	2,433 67	25,125 55	140,744 66	62,420 34	203,165 00
Lynn	15,716 71	3,943 16	19,659 87	15,064 53	3,418 62	18,483 15
Lynnfield	-	-	-	-	98 51	98 51
Malden	239 12	18 50	257 62	487 66	26 65	514 31
Mansfield	2,763 78	489 49	3,253 27	11,567 69	188 58	11,756 27
Marion	19,112 25	712 91	19,825 16	64,339 69	1,070 79	65,410 48
Marlborough	42,306 59	1,982 73	44,289 32	168,512 34	4,450 90	172,963 24
Marshfield	16,838 73	1,207 24	18,045 97	96,276 32	6,616 27	102,892 59
Mashpee	3,008 52	787 37	3,795 89	4,926 35	2,378 85	7,305 20
Mattapoisett	10,146 70	419 82	10,566 52	68,911 69	1,250 14	70,161 83
Medford	3,429 52	166 83	3,596 35	20,053 24	603 26	20,656 50



Total expended.	EXPENDED PER MILE IN 1921.			Total Cost per Mile per Year.	Length under Mainte- nance (Miles).	Amount to be assessed on Cities and Towns.
	From Revenue Appro- priation.	From Motor Vehicle Fees Fund.	Total.			
\$18,806 24	\$759 73	\$529 96	\$1,289 69	\$729 23	1.799	\$179 90
183,402 24	3 85	6,246 00	6,249 85	2,172 06	6.460	323 00
37,093 13	68 50	381 80	450 30	630 59	2.738	616 47
27,713 20	207 24	73 85	281 09	1,652 54	.801	112 58
11,502 08	113 75	142 44	256 19	197 52	2.427	242 70
18,578 78	117 42	751 24	868 66	588 44	5.462	273 10
82,277 13	149 72	707 81	857 53	797 38	8.123	812 30
15,096 32	313 59	1,362 52	1,676 11	974 96	1.457	145 70
27,782 10	203 24	398 16	601 40	589 21	3.727	1,120 69
313 45	721 87	1,389 68	2,111 55	1,411 93	.032	33 79
141,243 39	126 41	583 43	709 84	573 61	15.527	5,540 84
104,991 54	147 06	387 44	534 50	1,208 64	4.118	1,100 56
87,146 37	586 79	1,219 52	1,806 31	1,704 57	7.192	719 20
36,186 18	277 24	226 46	503 70	608 86	3.514	702 80
35,026 07	948 07	638 00	1,586 07	744 09	3.205	2,541 67
25,407 58	890 03	321 26	1,211 29	580 48	3.763	2,279 05
60,326 76	67 38	362 22	429 60	898 43	3.869	386 90
59,090 73	200 67	573 55	774 22	784 55	3.356	1,299 13
12,934 98	141 54	457 95	599 49	600 68	3.134	156 70
191 74	-	38 13	38 13	80 80	.284	5 42
103,336 58	85 92	515 14	601 06	1,069 39	6.750	2,028 58
31,316 92	133 66	721 05	854 71	554 24	2.460	123 00
55,829 23	408 95	691 35	1,100 30	643 06	9.578	1,915 60
37,322 41	209 78	633 86	843 64	426 92	7.686	384 30
70,247 09	125 38	584 96	710 34	744 35	8.703	3,091 05
132,327 03	89 65	6,484 88	6,574 53	1,583 81	7.788	11,402 00
11,725 97	96 55	291 11	387 66	377 49	5.351	1,037 20
19,172 86	795 14	172 55	967 69	599 45	1.723	172 30
75,536 28	272 22	510 38	782 60	783 22	4.690	938 00
73,859 96	114 04	342 66	456 70	1,561 29	3.101	620 40
246,677 73	46 08	7,474 80	7,520 88	3,257 33	3.232	161 60
24,517 24	178 96	785 03	963 99	636 20	5.697	1,139 20
9,466 59	1,586 84	1,341 44	2,928 28	529 45	.819	163 80
16,718 25	358 29	652 93	1,011 22	461 25	2.316	463 20
58,359 99	257 02	324 42	581 44	485 61	6.477	647 70
80,285 04	72 11	423 77	495 88	1,865 48	3.540	708 00
65,125 32	899 88	687 06	1,586 94	687 55	5.716	4,535 46
64,370 25	55 22	472 79	528 01	906 32	6.157	1,625 47
8,971 81	89 80	648 68	738 48	375 31	3.525	176 25
13,838 14	174 79	177 94	352 73	317 91	3.915	690 46
59,063 97	311 08	543 93	855 01	492 13	6.949	1,389 80
21,748 71	297 38	390 36	687 74	219 20	4.924	984 80
59,182 51	222 43	626 11	848 54	1,247 78	4.167	1,767 92
1,580 63	1,350 73	88 50	1,439 23	1,429 15	.316	353 26
8,917 94	378 12	1,002 44	1,380 56	530 90	1.142	788 30
45,343 94	346 10	1,033 07	1,379 17	712 80	8.015	400 75
106,663 67	1,058 47	837 15	1,895 62	1,989 51	4.421	4,190 27
12,477 94	284 74	1,014 51	1,299 25	437 50	2.539	253 90
70,344 08	154 19	436 01	590 20	611 71	8.360	836 00
14,539 26	521 55	2,034 01	2,555 56	606 96	1.249	249 80
13,671 24	212 98	349 96	562 94	563 43	3.458	117 00
30,079 06	669 98	331 04	1,001 02	3,038 59	.810	405 41
84,846 11	366 69	800 04	1,166 73	602 00	10.706	2,141 20
255,067 57	789 40	17,581 69	18,371 09	2,204 41	5.437	1,087 40
128,189 73	468 90	1,299 29	1,768 19	1,002 91	7.663	6,774 81
25,258 09	831 86	1,599 32	2,431 18	571 28	2.549	3,098 55
143,739 14	114 21	565 62	679 83	1,401 09	5.007	1,701 96
82,830 27	115 23	689 95	805 18	1,615 82	2.060	206 00
246,542 56	253 39	16,250 46	16,503 85	3,435 17	8.828	882 80
61,264 65	907 26	1,807 71	2,714 97	1,052 55	2.654	3,602 77
228,290 55	413 47	10,604 88	11,018 35	2,706 59	5.886	588 60
38,143 02	1,076 78	933 54	2,010 32	1,192 90	3.662	3,680 89
98 51	-	64 72	64 72	648 09	1.522	49 25
771 93	122 52	176 49	299 01	1,495 99	.151	22 58
15,009 54	403 54	155 47	559 01	710 21	1.213	339 03
85,235 64	107 85	162 00	269 85	671 27	6.610	891 85
217,252 56	283 98	637 48	921 46	1,772 68	6.982	3,216 83
120,938 56	145 85	799 36	945 21	869 94	8.277	1,655 40
11,101 09	100 79	304 51	405 30	199 92	7.812	390 60
80,728 35	130 95	389 94	520 89	1,139 55	3.206	320 60
24,252 85	193 54	699 83	893 37	2,100 54	.862	385 05

TOWN OR CITY.	AMOUNTS EXPENDED.					
	REVENUE APPROPRIATIONS.			MOTOR VEHICLE FEES FUND.		
	Total to 1921.	During 1921.	Total.	Total to 1921.	During 1921.	Total.
Melrose . . . . .	\$3,013 00	\$103 15	\$3,116 15	\$2,419 59	\$443 98	\$2,863 57
Mendon . . . . .	519 01	444 84	963 85	3,078 86	722 00	3,800 86
Merrimac . . . . .	10,198 73	2,196 43	12,395 16	8,413 38	2,449 32	10,862 70
Methuen . . . . .	15,168 04	2,731 15	17,899 19	83,646 68	2,277 54	85,924 22
Middleborough . . . . .	28,645 28	1,999 75	30,645 03	119,726 80	6,629 62	126,356 42
Middleton . . . . .	15,946 17	46 39	15,992 56	3,299 70	1,437 78	4,737 48
Milford . . . . .	7,246 92	1,680 90	8,927 82	11,375 75	3,924 02	15,299 77
Millbury . . . . .	20,382 30	867 64	21,249 94	54,457 45	3,184 54	57,641 99
Millville . . . . .	3,981 90	1,128 11	5,110 01	4,949 34	2,698 60	7,647 94
Milton . . . . .	8,317 25	369 08	3,686 33	14,847 51	641 59	15,489 10
Monson . . . . .	5,177 77	299 98	5,477 75	2,576 30	961 54	3,537 84
Montague . . . . .	13,756 04	1,599 36	15,355 40	47,364 32	12,136 35	59,500 67
Nantucket . . . . .	24,886 21	1,802 23	26,688 44	14,030 11	3,326 44	17,356 55
Natick . . . . .	15,989 49	617 06	16,606 55	81,743 46	1,556 03	83,299 49
Needham . . . . .	7,092 42	604 15	7,696 57	6,792 73	970 09	7,762 82
New Ashford . . . . .	-	-	-	-	66 27	66 27
New Braintree . . . . .	546 86	123 40	670 26	445 42	85 55	530 97
Newbury . . . . .	22,251 28	3,436 01	25,687 29	18,976 37	4,539 30	23,515 67
Newburyport . . . . .	14,257 10	754 90	15,012 00	10,219 37	1,170 05	11,389 42
New Marlborough . . . . .	269 06	-	269 06	192 06	100 66	292 72
Newton . . . . .	4,274 57	71 56	4,346 13	18,432 07	158 35	18,590 42
Norfolk . . . . .	6,649 64	355 52	7,005 16	16,084 60	1,332 97	17,417 57
North Adams . . . . .	64,529 75	5,160 43	69,690 18	116,591 81	85,197 75	201,789 56
Northampton . . . . .	12,288 24	743 95	13,032 19	47,212 43	1,945 92	49,158 35
North Andover . . . . .	22,764 29	7,666 60	30,430 89	19,097 21	4,378 22	23,475 43
North Attleborough . . . . .	14,162 74	1,016 05	15,178 79	55,599 94	1,766 36	57,366 30
Northborough . . . . .	20,383 95	1,047 67	21,431 62	76,761 30	3,115 13	79,876 43
Northbridge . . . . .	1,242 09	240 74	1,482 83	3,006 95	1,125 01	4,131 96
North Brookfield . . . . .	4,332 42	786 51	5,118 93	5,101 14	2,212 25	7,313 39
Northfield . . . . .	8,390 46	792 61	9,183 07	25,858 45	3,472 09	29,330 54
North Reading . . . . .	21,742 95	377 31	22,120 26	67,768 29	2,149 03	69,917 32
Norton . . . . .	12,994 13	2,888 34	15,882 47	17,589 49	1,258 51	18,848 00
Norwell . . . . .	-	-	-	-	141 80	141 80
Norwood . . . . .	14,659 31	1,604 61	16,263 92	28,840 91	2,330 58	31,171 49
Oak Bluffs . . . . .	11,361 56	1,093 91	12,455 47	7,105 67	279 88	7,385 55
Oakham . . . . .	1,463 47	559 57	2,023 04	6,168 94	1,146 47	7,315 41
Orange . . . . .	21,538 55	1,558 19	23,096 74	64,479 27	7,070 36	71,549 63
Orleans . . . . .	10,745 79	472 97	11,218 76	17,966 36	1,638 90	19,605 26
Oxford . . . . .	8,700 34	1,440 58	10,140 92	10,238 34	4,429 79	14,668 13
Palmer . . . . .	49,397 91	4,421 81	53,819 72	146,656 01	118,735 47	265,391 48
Paxton . . . . .	26,846 75	1,003 50	27,850 25	25,960 59	3,584 95	29,545 54
Peabody . . . . .	-	-	-	-	-	-
Pembroke . . . . .	4,255 85	564 74	4,820 59	5,388 38	3,114 07	8,502 45
Pepperell . . . . .	4,643 86	753 72	5,397 58	10,049 12	2,576 99	12,626 11
Petersham . . . . .	1,651 04	1,692 15	3,343 19	6,749 46	4,860 79	11,610 25
Phillipston . . . . .	25,552 50	139 66	25,692 16	30,240 81	1,550 10	31,790 91
Pittsfield . . . . .	61,981 66	2,449 07	64,430 73	150,293 41	35,059 62	185,353 03
Plainville . . . . .	7,054 41	2,397 10	9,451 51	28,644 76	3,230 25	31,875 01
Plymouth . . . . .	20,900 30	1,310 77	22,211 07	80,874 19	8,647 43	89,521 62
Princeton . . . . .	4,602 30	312 83	4,915 13	7,864 18	1,439 27	9,303 45
Provincetown . . . . .	5,734 39	1,693 23	7,427 62	16,051 97	5,490 37	21,542 34
Quincy . . . . .	10,637 55	1,188 54	11,826 09	62,475 55	1,796 39	64,271 94
Randolph . . . . .	4,270 57	607 14	4,877 71	52,211 22	2,718 75	54,929 97
Raynham . . . . .	6,189 58	1,016 56	7,206 14	15,135 51	2,495 20	17,630 71
Reading . . . . .	41,354 87	446 83	41,801 70	56,731 78	5,535 64	62,267 42
Rehoboth . . . . .	17,223 84	4,067 48	21,291 32	63,467 62	5,000 84	68,468 46
Revere . . . . .	19,186 76	2,777 19	21,963 95	42,960 61	4,894 95	47,855 56
Richmond . . . . .	9,573 87	593 25	10,167 12	31,914 45	4,905 06	36,819 51
Rochester . . . . .	11,694 81	855 59	12,550 40	32,485 79	1,878 33	34,364 12
Rockland . . . . .	8,461 90	448 20	8,910 10	14,879 56	4,977 86	19,857 42
Rockport . . . . .	10,736 31	1,004 23	11,740 54	4,659 98	1,147 68	5,807 66
Rowley . . . . .	14,204 77	2,311 06	16,515 83	100,421 24	2,512 79	102,934 03
Royalston . . . . .	-	-	-	-	20 79	20 79
Russell . . . . .	41,218 01	3,232 24	44,450 25	52,647 65	8,873 36	61,521 01
Rutland . . . . .	5,973 42	899 90	6,873 32	13,077 23	2,164 48	15,241 71
Salem . . . . .	20,515 15	649 92	21,165 07	12,999 84	2,702 63	15,702 47
Salisbury . . . . .	12,895 01	3,416 89	16,311 90	57,164 47	4,294 16	61,458 63
Sandwich . . . . .	14,288 87	889 88	15,178 75	31,937 28	3,217 85	35,155 13
Saugus . . . . .	19,457 27	1,953 68	21,410 95	71,264 00	3,034 05	74,298 05
Savoy . . . . .	4,635 26	671 12	5,306 38	9,847 28	3,755 10	13,602 38
Scituate . . . . .	14,229 36	677 88	14,907 24	48,945 32	6,487 20	55,432 52
Seekonk . . . . .	13,503 05	2,161 88	15,664 93	90,877 17	3,755 51	94,632 68
Sharon . . . . .	1,051 56	222 32	1,273 88	1,750 49	338 69	2,089 18

Total expended.	EXPENDED PER MILE IN 1921.			Total Cost per Mile per Year.	Length under Mainte- nance (Miles).	Amount to be assessed on Cities and Towns.
	From Revenue Appro- priation.	From Motor Vehicle Fees Fund.	Total.			
\$5,979 72	\$181 60	\$781 65	\$963 25	\$905 60	.568	\$273 56
4,764 71	240 97	391 12	632 09	640 16	1.846	92 30
23,257 86	984 50	1,097 86	2,082 36	502 99	2.231	223 10
103,823 41	350 28	292 10	642 38	1,079 85	7.797	2,504 35
157,001 45	160 71	532 80	693 51	683 09	12.443	3,504 58
30,730 04	17 47	541 54	559 01	1,078 28	2.655	265 50
24,227 59	474 02	1,106 60	1,580 62	505 28	3.546	2,802 46
78,891 93	291 05	1,068 28	1,359 33	1,489 06	2.981	596 20
12,757 95	680 81	1,628 61	2,309 42	541 19	1.657	165 70
24,175 43	349 17	606 99	956 16	1,284 22	1.057	505 34
9,015 59	185 75	595 38	781 13	260 27	1.615	323 00
74,856 07	279 12	2,118 04	2,397 16	811 44	5.730	6,867 85
44,044 99	278 16	513 42	791 58	291 91	6.479	2,564 34
99,906 04	192 59	485 65	678 24	1,711 57	3.204	1,086 54
15,459 39	296 88	476 70	773 58	442 52	2.035	787 12
66 27	—	66 27	66 27	—	1.000	33 13
1,201 23	310 83	215 49	526 32	150 68	.397	19 85
49,202 96	812 10	1,072 87	1,884 97	622 19	4.231	846 20
26,401 42	340 04	527 05	867 09	623 24	2.220	962 46
561 78	—	437 65	437 65	814 18	.230	23 00
22,936 55	69 34	153 44	222 78	1,067 11	1.032	114 96
24,422 73	245 86	921 83	1,167 69	548 01	1.446	144 60
271,479 74	634 27	10,471 70	11,105 97	2,305 54	8.136	7,254 67
62,190 54	106 23	277 87	384 10	843 01	7.003	1,344 94
53,906 32	722 99	412 88	1,135 87	492 76	10.604	6,022 41
72,545 09	282 39	490 93	773 32	812 90	3.598	1,391 20
101,308 05	195 46	581 18	776 64	1,138 83	5.363	1,072 00
5,614 79	53 51	250 06	303 57	285 23	4.499	682 87
12,432 32	349 25	982 35	1,331 60	385 52	2.252	450 40
38,513 61	164 17	719 16	883 33	956 31	4.828	427 80
92,037 58	148 66	846 74	995 40	1,825 45	2.538	253 80
34,730 47	379 00	165 14	544 14	569 85	7.621	762 10
141 80	—	66 32	66 32	33 16	2.138	70 90
47,435 41	755 82	1,097 78	1,853 60	953 36	2.123	1,967 59
19,841 02	458 28	117 25	575 53	326 52	2.387	477 40
9,338 45	200 42	410 63	611 05	645 90	2.792	139 60
94,646 37	324 96	1,474 53	1,799 49	925 68	4.795	959 00
30,824 02	100 67	348 85	449 52	376 50	4.698	939 60
24,809 05	167 82	516 05	683 87	550 37	8.584	1,716 80
319,211 20	307 82	8,265 61	8,573 43	1,870 81	14.365	12,332 14
57,395 79	278 98	996 65	1,275 63	647 44	3.597	179 85
—	—	—	—	—	3.238	—
13,323 04	129 97	716 70	846 67	452 07	4.345	434 00
18,023 69	210 71	720 43	931 14	582 61	3.577	715 60
14,953 44	206 77	593 79	800 50	738 40	8.186	766 40
57,483 07	50 15	556 59	606 74	1,191 31	2.785	139 25
249,783 76	270 53	3,872 71	4,143 24	1,839 94	9.053	6,348 70
41,326 52	1,045 40	1,408 74	2,454 14	1,158 19	2.293	229 30
111,732 69	91 03	604 72	695 75	555 18	14.300	5,089 87
14,218 58	140 28	645 41	785 69	322 79	2.230	223 00
28,969 96	437 75	1,419 43	1,857 18	940 46	3.868	773 60
76,098 03	368 31	556 67	924 98	1,656 32	3.227	1,492 47
59,807 68	163 65	732 82	896 47	1,417 51	3.710	742 00
24,836 85	179 83	441 39	621 22	441 85	5.653	565 30
104,069 12	113 90	1,411 07	1,524 97	1,461 50	3.923	2,991 24
89,759 78	621 37	763 95	1,385 32	800 41	6.546	654 60
69,819 51	553 12	974 90	1,528 02	2,307 47	5.021	3,836 07
46,986 63	147 68	1,221 08	1,368 78	623 18	4.017	200 85
46,914 52	138 67	304 43	443 10	448 42	6.170	617 00
28,767 52	190 40	2,114 63	2,305 03	730 38	2.354	2,713 03
17,548 20	627 64	717 28	1,344 92	790 47	1.600	320 00
119,449 86	636 13	691 66	1,327 79	2,632 79	3.633	363 30
20 79	—	—	—	—	—	—
105,971 26	332 53	912 90	1,245 43	611 50	9.720	1,944 00
22,115 03	162 17	390 07	552 24	657 48	5.549	554 90
36,867 54	196 35	816 50	1,012 85	1,222 68	3.310	1,120 96
77,770 53	345 04	433 62	778 66	838 33	9.903	990 30
50,333 88	93 46	337 97	431 42	464 05	9.521	952 10
95,709 00	301 65	468 43	770 08	1,992 61	6.477	2,493 86
18,908 76	372 22	2,082 70	2,454 92	1,480 02	1.803	90 20
70,339 76	126 14	1,207 15	1,333 29	766 70	5.374	3,582 54
110,297 61	358 58	622 91	981 49	1,344 58	6.029	1,205 80
3,363 06	348 46	530 86	879 32	402 04	.638	127 60

TOWN OR CITY.	AMOUNTS EXPENDED.					
	REVENUE APPROPRIATIONS.			MOTOR VEHICLE FEES FUND.		
	Total to 1921.	During 1921.	Total.	Total to 1921.	During 1921.	Total.
Sheffield . . . . .	\$8,962 98	\$1,738 35	\$10,701 33	\$15,442 05	\$5,943 85	\$21,385 90
Shelburne . . . . .	15,080 65	1,425 15	16,505 80	30,270 76	5,720 06	35,990 82
Shirley . . . . .	2,503 44	340 13	2,843 57	2,940 95	1,450 88	4,391 83
Shrewsbury . . . . .	51,575 25	1,521 03	53,096 28	106,931 76	7,670 32	114,602 08
Somerset . . . . .	26,047 64	3,679 33	29,726 97	124,744 83	3,427 47	128,172 30
Somerville . . . . .	7,691 74	312 96	8,004 70	44,060 12	479 95	44,540 07
Southampton . . . . .	1,516 70	25 86	1,542 56	1,683 07	1,790 86	3,473 93
Southborough . . . . .	10,055 72	384 72	10,440 44	10,625 77	1,163 46	11,789 23
Southbridge . . . . .	4,390 53	174 32	4,564 85	8,069 03	1,324 68	9,393 71
South Hadley . . . . .	55,338 68	1,863 07	57,201 75	55,018 18	5,714 04	60,732 22
Spencer . . . . .	24,067 53	757 65	24,825 18	22,670 10	34,053 46	56,723 56
Sterling . . . . .	17,711 25	3,173 60	20,884 85	14,809 72	5,584 55	20,394 27
Stockbridge . . . . .	14,447 70	1,208 58	15,656 28	28,196 58	2,987 69	31,184 27
Stoneham . . . . .	13,475 69	483 50	13,959 19	60,969 61	2,627 29	63,596 90
Stoughton . . . . .	10,831 95	977 24	11,809 19	48,140 56	91,738 62	139,879 18
Sturbridge . . . . .	7,155 98	339 81	7,495 79	11,544 90	2,261 42	13,806 32
Sudbury . . . . .	35,914 23	242 17	36,156 45	157,974 73	1,573 94	159,548 67
Sunderland . . . . .	5,631 30	368 15	5,999 45	25,692 89	2,117 60	27,810 49
Sutton . . . . .	9,992 03	1,138 97	11,131 00	17,043 02	3,054 96	20,097 98
Swampscott . . . . .	23,265 54	190 50	23,456 04	21,715 64	891 78	22,607 42
Swansea . . . . .	23,397 78	4,375 24	27,773 02	76,392 64	3,845 82	80,238 46
Taunton . . . . .	21,052 69	2,260 07	23,312 76	70,633 76	5,445 46	76,079 22
Templeton . . . . .	16,125 65	2,084 29	18,209 94	48,430 29	4,666 97	53,097 26
Tewksbury . . . . .	13,490 34	328 86	13,819 20	159,407 44	1,803 78	161,211 22
Tisbury . . . . .	5,989 23	41 10	6,030 33	23,948 92	874 30	24,823 22
Topsfield . . . . .	-	-	-	-	9 75	9 75
Townsend . . . . .	13,950 24	982 89	14,933 13	32,264 37	3,645 48	35,909 85
Truro . . . . .	13,592 58	1,135 93	14,728 51	49,048 51	74,522 49	123,571 00
Tryonborough . . . . .	25,117 91	2,573 46	27,691 37	29,600 24	6,382 70	35,982 94
Upton . . . . .	1,970 76	2,113 14	4,083 90	2,047 02	2,133 98	4,181 00
Uxbridge . . . . .	11,773 96	2,061 89	13,835 85	16,073 69	4,242 40	20,316 09
Wales . . . . .	2,309 64	859 44	3,169 08	2,315 30	850 18	3,165 48
Walpole . . . . .	22,132 58	1,635 37	23,767 95	62,069 52	4,779 37	66,848 89
Waltham . . . . .	-	-	-	-	23 34	23 34
Ware . . . . .	13,285 36	1,508 36	14,793 72	12,707 43	7,140 43	19,847 86
Wareham . . . . .	26,497 10	2,088 01	28,585 11	94,468 83	6,001 97	100,470 80
Warren . . . . .	22,521 09	832 77	23,353 86	119,768 72	4,407 33	124,176 05
Washington . . . . .	-	214 70	214 70	159 25	842 40	1,001 65
Watertown . . . . .	9,047 37	303 14	9,350 51	12,185 71	40,825 21	53,010 92
Wayland . . . . .	42,941 85	430 43	43,372 28	40,951 50	1,162 46	42,113 96
Webster . . . . .	5,225 69	652 44	5,878 13	13,428 85	1,192 84	14,621 69
Wellesley . . . . .	6,210 65	272 15	6,482 80	18,455 95	382 26	18,838 21
Wellfleet . . . . .	13,526 80	518 33	14,045 13	69,574 93	39,002 23	108,577 16
Wenham . . . . .	14,045 00	290 03	14,335 03	54,669 75	1,054 77	55,724 52
Westborough . . . . .	7,536 70	544 03	8,080 73	9,241 99	1,543 68	10,785 58
West Boylston . . . . .	11,224 38	788 65	12,013 03	43,995 20	1,546 64	45,541 84
West Bridgewater . . . . .	22,738 35	308 52	23,046 87	10,860 09	1,742 27	12,602 36
West Brookfield . . . . .	18,785 60	664 35	19,449 95	46,522 14	73,453 94	119,976 08
Westfield . . . . .	38,283 74	3,290 80	41,574 54	49,075 56	16 846 29	65,921 85
Westford . . . . .	15,863 38	2,763 45	18,626 83	19,370 62	7,157 72	26,528 34
Westminster . . . . .	32,290 50	3,505 00	35,795 50	81,862 30	5,807 29	87,669 59
West Newbury . . . . .	24,983 03	1,194 45	26,177 48	21,354 96	2,606 95	23,961 91
Weston . . . . .	25,613 02	495 07	26,108 09	43,289 68	981 15	44,270 83
Westport . . . . .	39,693 10	881 18	40,574 28	61,170 43	2,893 71	64,064 14
West Springfield . . . . .	11,585 18	439 60	12,024 78	51,048 59	3,025 41	54,074 00
West Tisbury . . . . .	6,389 25	160 25	6,549 50	20,253 96	9,007 63	29,261 59
Westwood . . . . .	12,980 59	1,151 06	14,131 65	14,844 98	1,529 63	16,374 61
Weymouth . . . . .	34,868 86	2,078 38	36,947 24	101,012 37	8,569 87	109,582 24
Whately . . . . .	16,287 88	570 60	16,858 48	48,523 52	1,863 15	50,386 67
Whitman . . . . .	7,048 49	490 75	7,539 24	19,742 50	1,912 88	21,655 38
Wilbraham . . . . .	27,499 15	1,441 26	28,940 41	100,909 66	5,817 68	106,727 34
Williamsburg . . . . .	9,467 14	1,080 32	10,547 46	35,206 40	3,971 27	39,177 67
Williamstown . . . . .	14,999 70	926 37	15,926 07	44,376 98	8,055 10	52,432 08
Wilmington . . . . .	6,141 10	709 95	6,851 05	75,529 10	1,341 25	76,870 35
Winchendon . . . . .	16,049 59	3,792 84	19,842 43	40,843 10	8,533 53	49,376 63
Winchester . . . . .	12,896 62	1,351 48	14,248 10	16,868 58	45,461 83	62,330 41
Windsor . . . . .	2,710 73	202 80	2,913 53	6,008 46	990 26	6,998 72
Woburn . . . . .	14,854 95	1,253 06	16,108 01	13,412 22	67,929 59	81,341 81
Worcester . . . . .	34,168 72	2,064 61	36,233 33	75,827 67	4,702 47	80,530 14
Wrentham . . . . .	19,844 82	3,032 37	22,877 19	69,321 32	5,908 73	75,230 05
Yarmouth, North } . . . . .	24,269 05	1,328 35	25,597 40	56,801 70	2,867 12	59,668 82
Yarmouth, South }						
Total . . . . .	\$4,209,091 18	\$367,697 00	\$4,576,788 18	\$10,877,487 63	\$2,252,002 87	\$13,129,490 50

Total expended.	EXPENDED PER MILE IN 1921.			Total Cost per Mile per Year.	Length under Main- tenance (Miles).	Amount to be assessed on Cities and Towns.
	From Revenue Appro- priation.	From Motor Vehicle Fees Fund.	Total.			
\$32,087 23	\$151 11	\$516 67	\$667 78	\$537 03	11.504	\$1,150 40
52,496 62	151 95	609 88	761 83	824 61	9.379	1,366 60
7,235 40	94 01	401 02	495 03	309 34	3.618	361 80
167,698 36	313 36	1,580 21	1,893 57	1,554 89	4.854	970 80
157,899 27	370 94	345 55	716 49	946 49	9.919	1,983 80
52,544 77	197 70	303 19	500 89	2,965 11	1.583	396 46
5,016 49	36 53	2,529 47	2,566 00	448 46	.708	35 40
22,229 67	104 23	315 22	419 45	428 01	3.691	738 20
13,958 56	128 46	976 18	1,104 64	580 83	1.357	749 50
117,933 97	252 99	775 94	1,028 93	924 48	7.364	3,788 55
81,548 74	247 68	11,132 22	11,379 90	1,556 00	3.059	611 80
41,279 12	389 02	684 55	1,073 57	428 74	8.158	815 80
46,840 55	284 17	702 49	986 66	973 65	4.253	850 60
77,556 09	305 63	1,660 74	1,966 37	2,268 38	1.582	1,555 39
151,688 37	175 73	16,496 78	16,672 51	2,141 52	5.561	4,378 00
21,302 11	144 42	961 08	1,105 50	552 32	2.353	235 30
195,705 12	47 35	307 77	355 12	1,887 72	5.114	511 40
33,809 94	92 71	533 27	625 98	753 69	3.971	198 55
31,228 98	165 14	442 94	608 08	595 78	6.897	689 70
46,063 46	127 77	598 10	725 87	1,388 29	1.491	541 14
108,011 48	462 50	406 53	869 03	1,062 02	9.460	1,892 00
99,391 98	212 57	512 18	724 75	792 43	10.632	3,852 77
71,307 20	366 44	820 49	1,186 93	806 18	5.688	1,137 60
180,030 42	53 16	291 59	344 75	1,619 92	6.186	1,237 20
30,853 60	21 34	453 94	475 28	607 27	1.926	385 20
9 75	-	-	-	-	-	-
50,842 98	150 87	559 55	710 42	442 06	6.515	651 50
138,299 51	112 55	7,383 58	7,496 13	1,564 65	10.093	504 65
63,674 31	370 82	919 70	1,290 52	550 50	6.940	347 00
8,264 90	407 39	411 41	818 80	922 42	5.187	518 70
34,151 94	352 10	724 45	1,076 55	506 45	5.856	3,152 14
6,334 56	168 52	166 70	335 22	248 55	5.100	255 00
90,616 84	309 91	905 70	1,215 61	799 09	5.277	3,207 37
23 34	-	24 51	24 51	-	.952	11 67
34,641 58	221 75	1,049 75	1,271 50	487 37	6.802	4,324 40
129,055 91	157 75	453 46	611 21	888 12	13.236	4,044 99
147,529 91	168 58	892 17	1,060 75	1,702 75	4.940	988 00
1,216 35	96 32	377 93	474 25	455 05	2.229	111 45
62,361 43	356 64	48,029 66	48,386 30	2,914 35	.850	1,700 00
85,486 24	150 50	406 45	556 95	1,543 71	2.860	572 00
20,499 82	250 65	458 26	708 91	779 75	2.603	922 64
25,321 01	231 42	325 05	556 47	1,061 05	1.176	327 21
122,622 29	70 37	5,294 90	5,365 27	1,360 82	7.366	368 30
70,059 55	164 60	598 63	763 23	1,922 44	1.762	352 40
18,866 31	181 89	516 11	698 00	353 13	2.991	598 20
57,554 87	183 27	359 43	542 70	1,059 72	4.303	430 30
35,649 23	97 60	551 18	648 78	583 01	3.161	316 10
139,426 03	236 09	26,103 03	26,339 12	2,672 84	2.814	281 40
107,496 39	566 99	2,902 53	3,469 52	814 36	5.804	5,540 57
45,155 17	558 39	1,446 30	2,004 69	598 89	4.949	989 80
123,465 09	436 87	723 83	1,160 70	1,014 45	8.023	802 30
50,139 39	233 97	510 67	744 64	528 22	5.105	510 50
70,378 92	157 07	311 28	468 35	1,015 45	3.152	738 11
104,638 42	188 69	619 64	808 33	943 41	4.670	934 00
66,098 78	162 57	1,118 86	1,281 43	1,395 37	2.704	1,732 50
35,811 09	29 91	1,681 16	1,711 07	316 71	5.358	267 90
30,506 26	1,074 75	1,428 23	2,502 98	1,354 39	1.071	214 20
146,529 48	228 02	940 19	1,168 21	1,102 21	9.115	5,324 12
67,245 15	141 73	462 78	604 51	937 79	4.026	201 30
29,194 62	122 99	479 42	602 41	452 33	3.990	1,201 81
135,667 75	285 12	1,150 88	1,436 00	1,325 14	5.055	1,011 00
49,725 13	403 10	1,481 82	1,884 92	876 15	2.680	268 00
68,358 15	107 56	935 33	1,042 89	1,362 15	8.612	1,701 00
83,721 40	193 02	364 67	557 69	1,992 04	3.678	735 60
69,219 06	515 61	1,160 08	1,675 69	1,711 43	7.356	1,471 20
76,578 51	692 36	23,289 87	23,982 23	1,817 75	1.952	2,100 00
9,912 25	23 95	116 97	140 92	190 34	8.466	325 15
97,449 82	178 04	9,651 83	9,829 87	1,638 86	7.038	4,070 00
116,763 47	507 03	1,154 83	1,661 86	1,368 81	4.072	3,383 54
98,107 24	318 66	620 93	939 59	699 42	9.516	951 70
85,266 22	150 98	325 88	476 86	390 37	8.798	1,759 60
\$17,706,278 68	-	-	-	-	1,371.608	\$377,003 92

## HIGHWAY IMPROVEMENTS AUTHORIZED BY SPECIAL ACTS.

The following contracts were entered into during the year for the construction of town ways under special acts of the Legislature: —

*Westborough.*

March 29, 1921, contract made with George E. Greenough of Acton for the construction of 2,730 feet of town road, under the provisions of chapter 536 of the Acts of 1920, the surface consisting of bituminous macadam 15 feet wide. The proposal amounted to \$13,502.50.

Work completed Aug. 16, 1921.

Expenditure during 1921, \$14,000.

*Clinton.*

March 29, 1921, contract made with Fred E. Ellis of Melrose for the construction of 5,520 feet of town road, under the provisions of chapter 520 of the Acts of 1920, the surface consisting of bituminous macadam 18 feet wide. The proposal amounted to \$28,445.50.

Work completed July 12, 1921.

Expenditure during 1921, \$29,661.03.

*Washington.*

March 29, 1921, contract made with the Luigi C. Carchia Company of Boston for the construction of 2.29 miles of town road, under the provisions of chapter 221 of the General Acts of 1915, as amended, the surface consisting of bituminous macadam 18 feet wide. The proposal amounted to \$87,436.90.

Work completed Nov. 15, 1921.

Expenditure during 1921, \$79,947.16.

*Norton.*

April 5, 1921, contract made with Zebulon L. Canedy of Taunton for the construction of 3,600 feet of town road, under the provisions of chapter 348 of the General Acts of 1919, the surface consisting of bituminous macadam 18 feet wide. The proposal amounted to \$20,656.75.

Work completed July 26, 1921.

Expenditure during 1921, \$19,861.33.

*Dracut.*

June 8, 1921, contract made with the Hanscom Construction Company of Boston for the construction of 3,100 feet of town road, under the provisions of chapter 340 of the General Acts of 1919, the surface consisting of bituminous macadam 18 feet wide. The proposal amounted to \$16,955.

Work completed Sept. 27, 1921.

Expenditure during 1921, \$20,354.72.

*Barre and Oakham.*

Aug. 2, 1921, contract made with the Canton Engineering Company, Inc., of Canton for the construction of 1.737 miles of town road in Barre and Oakham, under the provisions of chapter 221 of the General Acts of 1915, as amended, the surface consisting of bituminous macadam 18 feet wide. The proposal amounted to \$76,069.15.

Work completed Dec. 20, 1921.

Expenditure during 1921, \$67,885.47.

*Dalton and Windsor.*

Aug. 16, 1921, contract made with the Hassam Paving Company of Worcester for the construction of 17,200 feet of town road, under the provisions of chapter 221 of the General Acts of 1915, as amended, the surface consisting of bituminous macadam 18 feet wide. The proposal amounted to \$69,569.04.

Work completed Nov. 22, 1921.

Expenditure during 1921, \$61,753.69.

*Huntington.*

Aug. 16, 1921, contract made with the Holbrook, Cabot & Rollins Corporation of Boston for the construction of a reinforced concrete arch bridge over the Westfield River, under the provisions of chapter 221 of the General Acts of 1915, as amended. This contract covered the work previously included in a contract made with Cordner & Montague of Springfield, said contractors having been notified to discontinue the work,

the chief engineer having certified in writing that the bridge work was unnecessarily and unreasonably delayed.

Work completed Dec. 3, 1921.

Expenditure during 1921, \$75,581.77.

*Holden.*

Aug. 23, 1921, contract made with George E. Greenough of Acton for the construction of 11,546 feet of town road, under the provisions of chapter 521 of the Acts of 1920, the surface consisting of bituminous macadam 18 feet wide. The proposal amounted to \$52,329.80. On Sept. 27, 1921, this contract was extended to cover the construction of an additional length of 4,500 feet of town road, under the provisions of section 34, chapter 90 of the General Laws.

Work about one-fourth completed.

Expenditure during 1921, \$19,306.53.

*Rutland.*

Aug. 3, 1921, contract made with Alexander Palladino of Newton for the construction of 1,525 feet of town road, under the provisions of chapter 337 of the General Acts of 1919, the surface consisting of gravel 18 feet wide. The proposal amounted to \$6,252.

Work completed Nov. 22, 1921.

Expenditure during 1921, \$6,809.03.

*Monterey.*

Sept. 20, 1921, contract made with the Hoyt Construction Company of Holyoke for the construction of 6,400 feet of town road, under the provisions of chapter 571 of the Acts of 1920, the surface consisting of gravel 18 feet wide. The proposal amounted to \$17,327.50.

Work not completed.

Expenditure during 1921, \$17,326.24.

*Middlefield and Peru.*

Oct. 13, 1921, contract made with Carlo Bianchi & Co., Inc., of Framingham for the construction of 5,600 feet of town road in Middlefield and of 5,450 feet of town road in Peru, under



the provisions of chapter 566 of the Acts of 1920, the surface consisting of hardpan 18 feet wide. The proposal amounted to \$38,047.50.

Expenditure during 1921, \$5,971.13.

*Gill.*

Oct. 13, 1921, contract made with Antonio Pallatto of Dracut for the construction of 8,450 feet of town road, under the provisions of chapter 221 of the General Acts of 1915, as amended, the surface consisting of gravel 18 feet wide. The proposal amounted to \$30,767.

Work about one-third completed.

Expenditure during 1921, \$13,235.90.

*Ashfield.*

Nov. 1, 1921, contract made with Alexander Palladino of Newton for the construction of 8,646 feet of town road in Ashfield, under the provisions of chapter 221 of the General Acts of 1915, as amended, the surface consisting of gravel 18 feet wide. The proposal amounted to \$41,712.25.

No work done or payments made in 1921.

*Plainfield and Cummington.*

Nov. 9, 1921, contract made with George T. Seabury, Inc., of Providence, R. I., for the construction of 7,800 feet of town road in Cummington and 13,333 feet of town road in Plainfield, under the provisions of chapter 221 of the General Acts of 1915, as amended, the surface consisting of gravel 18 feet wide. The proposal amounted to \$77,805.25.

Expenditure during 1921, \$292.17.

## FEDERAL AID IN CONSTRUCTING HIGHWAYS.

Section 30 of chapter 81 of the General Laws.

An act to provide that the "United States shall aid the States in the construction of rural post roads, and for other purposes," was passed by Congress, and approved July 11, 1916, the Federal government appropriating and making available during the five following years the total amount of \$75,000,000 for use in aiding the States in the construction of certain roads agreed upon between the Secretary of Agriculture and the highway departments of the various States.

This act provided that one-half of the cost of constructing any project agreed upon between the Secretary of Agriculture and the State highway department shall be provided for from the State or local funds, and that the amount that the Federal government shall pay on any mile of road shall not exceed \$10,000 a mile for its half, exclusive of the cost of bridges of more than 20 feet clear span.

By chapter 67, General Acts of 1917, Massachusetts accepted the provisions of the act of Congress aforesaid, and a general scheme, comprising several different routes which the State proposed to adopt in the expenditure of Federal aid, was submitted in March, 1917, and was approved by the Federal authorities.

Chapter 18, General Acts of 1918, amended section 2 of chapter 67 aforesaid, and also provided that "the treasurer and receiver general is hereby authorized to receive from the United States any and all sums of money payable to this commonwealth under any act of congress for the construction of any highways therein. The sums so received shall be expended upon the order or approval of the Massachusetts highway commission without specific appropriation."

Special Acts of 1918, chapter 18, further authorized the Massachusetts Highway Commission "to expend during the years nineteen hundred and eighteen, nineteen hundred and nineteen and nineteen hundred and twenty the unexpended balance of the five million dollars authorized for the construction of state highways by chapter seven hundred and four of

the acts of nineteen hundred and twelve, and the unexpended balances of such appropriations or authorizations as have been heretofore made by the general court for the construction of specific highways or routes, in accordance with the several provisions of law originally authorizing said expenditures.”

Chapter 89, General Acts of 1919, further amended chapter 67, General Acts of 1917, as amended by chapter 18, General Acts of 1918, by adding a new section providing that “the Massachusetts highway commission is hereby authorized to make any agreements or contracts that may be required to secure federal aid in the construction of highways under the provisions of the act of congress aforesaid, and of all other acts in amendment thereof, or in addition thereto, and may, in such agreements or contracts, provide, among other things, for such labor preferences to honorably discharged soldiers, sailors and marines as are made necessary by federal legislation, and may provide that no other preference or discrimination among citizens of the United States shall be made in connection with the expenditure of any money received from the federal government by virtue of the said legislation.”

Chapter 81 of the General Laws provides in section 30 that “The division may make all contracts and agreements and do all other things necessary to co-operate with the United States in the construction and maintenance of rural highways, under an act of congress approved on July eleventh, nineteen hundred and sixteen, entitled ‘An Act to provide that the United States shall aid the states in the construction of rural post roads, and for other purposes’, and submit such plans, estimates and programs for the improvement of highways as will meet the requirements of the secretary of agriculture under said act, and it may use therefor any funds which may be available for the construction and maintenance of state highways, and may make any agreements or contracts that may be required to secure federal aid in the construction of highways under the provisions of the act of congress aforesaid, and of all other acts in amendment thereof, or in addition thereto, and may, in such agreements or contracts, provide, among other things, for such labor and preferences to honorably discharged soldiers, sailors and marines as are made necessary by federal legislation, and

may provide that no other preference or discrimination among citizens of the United States shall be made in connection with the expenditure of any money received from the federal government by virtue of the said legislation, and also any money received from the United States on account of the construction of highways. The division may also, for the purpose of securing federal aid, use any money appropriated by a county, city or town for the construction of a way or any part thereof for which federal aid may be secured, and make contracts or agreements involving the expenditure of said money, provided the county commissioners or the selectmen or duly authorized officials of the city or town have agreed in writing to pay the money thus appropriated upon the order of the division. The division may also maintain the roads constructed under this section or said act of congress, from any money appropriated by the general court for the maintenance of state highways or for the repair or maintenance of other public ways."

The act of Congress, approved July 11, 1916, was amended by an "Act making appropriations for the services of the Post Office Department for the fiscal year ending June 30, 1920, and for other purposes," approved Feb. 28, 1919. Under the amended act additional amounts were appropriated as follows: the sum of \$50,000,000 for the fiscal year ending June 30, 1919; \$75,000,000 for the fiscal year ending June 30, 1920; \$75,000,000 for the fiscal year ending June 30, 1921.

The act of 1919 also provided that section 6 of said act of Congress, approved July 11, 1916, "be further amended so that the limitation of payments not to exceed \$10,000 per mile, exclusive of the cost of bridges of more than twenty feet clear span, which the Secretary of Agriculture may make, be, and the same is, increased to \$20,000 per mile."

Further legislation is contained in the Federal Highway Act,<sup>1</sup> approved Nov. 9, 1921, amending the act of Congress approved July 11, 1916, as amended by the act approved Feb. 28, 1919.

The Federal Highway Act aforesaid provides that the Secretary of Agriculture, after making the deduction authorized by section 2 of said act, shall apportion the remainder of the appropriation made for expenditure under the provisions of

---

<sup>1</sup> Printed in the Appendix to this report, pages 107-115.

the act for the fiscal year among the several States in the following manner:—

One-third in the ratio which the area of each State bears to the total area of all the States; one-third in the ratio which the population of each State bears to the total population of all the States, as shown by the latest available Federal census; one-third in the ratio which the mileage of rural delivery routes and star routes in each State bears to the total mileage of rural delivery and star routes in all the States at the close of the next preceding fiscal year, as shown by the certificate of the Postmaster-General, which he is directed to make and furnish annually to the Secretary of Agriculture.

It appears from a certificate of the Secretary of Agriculture, dated Nov. 18, 1921, that of the appropriation of \$75,000,000 made by the Federal Highway Act aforesaid for the fiscal year ending June 30, 1922, \$25,000,000 is made immediately available and \$50,000,000 is to become available Jan. 1, 1922, and after deducting \$1,875,000, estimated to be necessary for administering the provisions of said act, the sum apportioned to Massachusetts as immediately available is \$365,392.01, and the sum to become available Jan. 1, 1922, is \$730,784.03, making the total apportionment to Massachusetts under said act \$1,096,176.04.

The total of the apportionments under previous acts of Congress was \$4,052,565.09, making a total apportionment to this State (including the sum available Jan. 1, 1922) of \$5,148,741.13.

The total amount received by Massachusetts from 1916 to Nov. 30, 1921, was \$1,092,258.74.

Projects to the number of 30 have been prepared in addition to those shown in the report of the Department for 1920. The total mileage included in the various Federal-aid road projects in this State, from the commencement of work of this character to Nov. 30, 1921, inclusive, was 250.949. The mileage in the various counties is:—

COUNTY.	Miles.
Barnstable . . . . .	30.605
Berkshire . . . . .	29.078
Bristol . . . . .	7.054
Essex . . . . .	46.665
Franklin . . . . .	15.961
Hampden . . . . .	15.992
Hampshire . . . . .	14.644
Middlesex . . . . .	28.302
Norfolk . . . . .	12.546
Plymouth . . . . .	9.196
Worcester . . . . .	40.906
Total . . . . .	250.949

## STATEMENT OF FEDERAL-AID ROAD PROJECTS.

No.	TOWN.	Miles.	Amount of Federal Aid involved.	Amount received.	Remarks.
1	Acushnet-Fairhaven . . . .	2.182	\$21,820 00	\$21,820 00	Work completed.
2	Hanover . . . . .	2.708	19,480 36	19,480 36	Work completed.
3	Malden-Melrose-Saugus . . .	1.162	11,620 00	11,620 00	Work completed.
4	Danvers . . . . .	1.325	15,460 22	15,460 22	Work completed.
5	Windsor-Dalton . . . . .	3.240	59,216 30	41,665 19	Work completed.
6	Sandwich . . . . .	1.818	10,678 02	10,678 02	Work completed.
7	Cummington . . . . .	4.659	86,816 53	33,540 52	Work completed.
8	Athol-Petersham . . . . .	7.016	90,074 51	90,074 51	Work completed.
9	Saugus . . . . .	3.122	65,472 27	34,865 79	Work completed.
10	Braintree . . . . .	2.420	40,554 80	30,819 23	Work completed.
11	Concord-Acton-Littleton . . .	4.849	77,600 87	77,600 87	Work completed.
12	Ipswich . . . . .	2.173	21,851 50	21,851 50	Work completed.
13	Littleton-Groton . . . . .	6.450	130,504 25	88,987 52	Work completed.
14	Barnstable . . . . .	3.331	22,687 65	18,991 54	Work completed.
15	Norwell-Hingham . . . . .	4.380	59,501 75	48,957 32	Work completed.
17	Lynnfield-Peabody . . . . .	1.794	35,880 00	-	Work completed.
18	Lunenburg . . . . .	2.797	55,940 00	33,903 53	Work completed.
19	Taunton . . . . .	2.116	42,320 00	22,982 74	Work completed.
20	Tewksbury . . . . .	2.909	35,211 82	26,098 73	Work completed.
21	Pittsfield-Hancock . . . . .	3.637	72,740 00	45,587 06	Work completed.
22	Greenfield-Bernardston . . . .	6.426	88,270 71	31,294 14	Work completed.
23	Great Barrington . . . . .	2.123	31,348 89	31,348 89	Work completed.
24	Seekonk . . . . .	2.756	19,527 75	19,527 75	Work completed.
25	Billerica . . . . .	.578	38,389 77	7,573 20	Work completed.
26	Greenfield-Shelburne:				
	Section 1 . . . . .	5.134	102,680 00	46,190 57	Work completed.
	Section 2 . . . . .	4.401	88,020 00 <sup>1</sup>	-	Project approved.
27	Hamilton-Wenham . . . . .	1.766	20,207 27	20,207 27	Work completed.
28	Lanesborough:				
	Section A . . . . .	.990	19,780 00	15,626 41	Work completed.
	Section B . . . . .	2.680	53,800 00 <sup>1</sup>	-	Project approved.
29	Ware . . . . .	2.626	46,557 55	26,112 27	Work completed.
30	Brimfield . . . . .	4.238	75,889 00 <sup>1</sup>	-	Project approved.
31	Danvers-Peabody . . . . .	1.107	22,140 00	17,222 31	Work completed.
32	Huntington . . . . .	3.078	102,103 37 <sup>1</sup>	25,828 43	Work under way.

<sup>1</sup> Signed agreements.

STATEMENT OF FEDERAL-AID ROAD PROJECTS — *Continued.*

No.	TOWN.	Miles.	Amount of Federal Aid involved.	Amount received.	Remarks.
33	Acton-Littleton:				
	Section A . . . . .	2.182	\$43,640 00 <sup>1</sup>	-	Work completed.
	Section B . . . . .	1.624	25,847 25 <sup>1</sup>	-	Work completed.
34	Dudley . . . . .	1.359	27,180 00	\$20,813 97	Work completed.
35	Haverhill-Methuen . . . .	4.544	90,880 00	-	Project approved.
36	Eastham-Wellfleet-Truro- Provincetown:				
	Section A . . . . .	10.690	91,347 85	74,237 30	Work completed.
	Section B . . . . .	6.719	75,935 60 <sup>1</sup>	-	Project approved.
	Section C . . . . .	8.047	86,130 51 <sup>1</sup>	-	Work under way.
37	Egremont . . . . .	1.164	20,579 07	20,579 07	Work under way.
38	Peabody-Danvers . . . .	2.827	56,540 00 <sup>1</sup>	-	Work completed.
39	Williamstown-New Ashford- Lanesborough:				
	Section A . . . . .	.020	14,132 25 <sup>1</sup>	-	Work completed.
	Section B . . . . .	3.323	66,460 00	-	Project approved.
	Section C . . . . .	4.560	91,200 00	-	Project approved.
40	East Brookfield . . . . .	1.011	20,220 00 <sup>1</sup>	-	Work completed.
41	Ashby . . . . .	1.250	22,141 03	\$15,956 92	Work completed.
42	Washington . . . . .	2.291	45,820 00	14,998 52	Work completed.
43	Leicester . . . . .	.638	12,760 00	9,757 07	Work completed.
44	Goshen-Cummington-Wind- sor:				
	Section A . . . . .	1.494	29,880 00	-	Project approved.
	Section B . . . . .	1.479	50,538 14	-	Project approved.
	Section C . . . . .	3.780	82,915 42	-	Project approved.
45	Palmer:				
	Sections A and C . . . .	1.795	35,900 00 <sup>1</sup>	-	Work completed.
	Section B . . . . .	.530	10,600 00	-	Project approved.
46	Upton-Hopedale:				
	Section A . . . . .	1.672	33,440 00 <sup>1</sup>	-	Work completed.
	Section B . . . . .	2.589	51,780 00	-	Project approved.
47	Barre-Oakham . . . . .	1.737	38,037 25 <sup>1</sup>	-	Work under way.
49	Middleborough . . . . .	2.108	25,461 70	-	Project approved.
50	Lunenburg . . . . .	1.763	35,260 00	-	Project approved.
51	Mendon-Uxbridge:				
	Section A . . . . .	1.959	39,180 00 <sup>1</sup>	-	Work completed.
	Section B . . . . .	2.504	50,080 00	-	Project approved.

<sup>1</sup> Signed agreements.



STATEMENT OF FEDERAL-AID ROAD PROJECTS — *Concluded.*

No.	TOWN.	Miles.	Amount of Federal Aid involved.	Amount received.	Remarks.
52	Oxford . . . . .	3.208	\$64,160 00 <sup>1</sup>	—	Work completed.
53	East Brookfield-Spencer-West Brookfield-Brookfield:				
	Section A . . . . .	.890	17,800 00 <sup>1</sup>	—	Work completed.
	Section B . . . . .	1.682	33,640 00 <sup>1</sup>	—	Work completed.
54	Leicester:				
	Section A . . . . .	.829	16,580 00 <sup>1</sup>	—	Work completed.
	Section B . . . . .	2.691	53,820 00	—	Project approved.
55	Quincy . . . . .	.549	10,980 00 <sup>1</sup>	—	Work completed.
56	Stoughton . . . . .	2.141	42,820 00 <sup>1</sup>	—	Work completed.
57	Winchester-Woburn . . . . .	3.042	59,131 31 <sup>1</sup>	—	Work completed.
58	Littleton . . . . .	1.345	26,900 00 <sup>1</sup>	—	Work completed.
59	Egremont . . . . .	.784	15,680 00 <sup>1</sup>	—	Work under way.
60	Middleton-Danvers . . . . .	1.907	38,224 70 <sup>1</sup>	—	Work completed.
61	Winchendon-Templeton . . . . .	5.393	107,860 00 <sup>1</sup>	—	Work under way.
62	Danvers-Topsfield:				
	Section A . . . . .	3.009	60,180 00 <sup>1</sup>	—	Project approved.
	Section B . . . . .	3.513	83,347 62	—	Project approved.
63	Essex-Ipswich . . . . .	4.489	89,780 00	—	Project approved.
64	Norwood . . . . .	1.065	21,300 00	—	Project approved.
65	North Adams . . . . .	1.638	32,760 00 <sup>1</sup>	—	Work completed.
66	Uxbridge . . . . .	1.168	23,360 00	—	Project approved, 67 and 68 withdrawn.
69	Haverhill . . . . .	2.657	53,140 00	—	Project approved.
70	Palmer . . . . .	2.550	51,000 00	—	Project approved.
71	Wrentham . . . . .	1.846	36,940 00	—	Project approved.
72	Walpole . . . . .	3.078	61,560 00	—	Project approved.
73	Southwick . . . . .	6.879	135,027 64	—	Project approved.
74	Becket . . . . .	.156	16,233 38	—	Project forwarded.
75	Topsfield-Ipswich-Rowley-Newbury:				
	Section A . . . . .	10.207	207,919 00	—	Project forwarded.
	Section B . . . . .	.350	7,000 00	—	Project forwarded.
76	Norfolk . . . . .	1.447	28,940 00	—	Project forwarded.
77	Merrimac . . . . .	1.025	20,400 00	—	Project forwarded.
78	Burlington . . . . .	3.761	75,220 00	—	Project forwarded.
	Total . . . . .	250.949	\$4,449,734 88	\$1,092,258 74	

<sup>1</sup> Signed agreements.

## BRIDGES.

During the year the Division has prepared designs and plans for, and done other work relating to, bridges throughout the Commonwealth. The various towns, the localities therein, the character of the structure and other details are as follows: —

## BRIDGES BUILT OR CONTRACTED FOR.

TOWN.	Locality.	Character of Structure.
Barre . . . .	Over canal . . . .	24-foot concrete slab.
Barre . . . .	Over Ware River . .	30-foot concrete beam.
Bernardston . .	Over Couch Brook . .	35-foot concrete beam.
Cummington . .	Over east branch of West- field River.	100-foot concrete arch.
Cummington . .	Over north branch of Swift River.	32-foot concrete beam.
Huntington . .	Over Westfield River . .	3-span concrete arch, 1 of 75 feet and 2 of 55 feet each.
Lanesborough . .	Over Town Brook . .	18-foot concrete beam.
Leicester . . . .	At Collier's Corner . .	Concrete retaining wall.
Littleton . . . .	Over Beaver Brook . .	15-foot concrete slab.
Littleton . . . .	Over Beaver Brook . .	24-foot concrete beam.
Middleton (Danvers line). . . .	Over Ipswich River . .	34-foot concrete beam.
New Ashford . .	Over brook . . . .	12-foot concrete slab.
New Ashford . .	Over east branch of Green River.	16-foot concrete beam.
New Ashford . .	Over east branch of Green River.	23½-foot concrete beam.
New Ashford . .	Over east branch of Green River.	16-foot concrete beam.
New Ashford . .	Over east branch of Green River.	16-foot concrete beam.
New Ashford . .	Over east branch of Green River.	28-foot concrete beam.
New Ashford . .	Over east branch of Green River.	24-foot concrete beam.
Norton . . . .	Over Main Street Flume .	11-foot concrete slab.
Oxford . . . .	- - -	Head wall for arch culvert.
Ware . . . .	Over Muddy River . .	20½-foot concrete beam.
Ware . . . .	Over Flat Brook . .	13-foot concrete slab.
Washington . .	Over west branch of West- field River.	16-foot concrete beam.
Williamstown . .	Over New Ashford Brook .	30-foot concrete beam.
Williamstown . .	Over Roaring Brook . .	13½-foot concrete slab.
Winchendon . .	Over Millers River . .	40-foot wooden pile.
Winchendon . .	Over branch of Millers River	16-foot concrete beam.
Winchendon . .	Over branch of Otis River .	8-foot concrete culvert.
Woburn . . . .	Over brook . . . .	8-foot concrete slab.

## ALTERATIONS, REPAIRS AND EXTENSIONS TO BRIDGES COMPLETED IN 1921.

TOWN.	Locality.	Character of Work.
Brookfield . . .	Over Stone Brook . . .	Extending 11-foot concrete slab.
Buckland (Charlemont line).	Scott's bridge . . .	Cleaning and painting.
Fall River . . .	Over Taunton Great River, Brightman Street bridge.	Cleaning and painting.
Granby . . .	— — —	Repairing wooden truss bridge.
Lanesborough . . .	Over Town Brook . . .	Extension of 18-foot concrete beam.
Newburyport (Salisbury line).	Over Merrimack River . . .	Repairs to fender pier.
North Adams . . .	Greylock bridge . . .	Cleaning and painting.
Oxford . . .	Over French or Maanexet River.	Extension of 16-foot concrete arch.
West Brookfield . . .	Over Tannery Brook . . .	Extension of 20-foot concrete beam.

## CONTEMPLATED BRIDGES AND STRUCTURES.

*Plans, Studies or Estimates made.*

TOWN.	Locality.	Character of Structures.
Becket . . .	Over Sparks Brook . . .	Extension of 13-foot concrete beam.
Becket . . .	Over west branch of Westfield River.	35-foot concrete beam.
Becket . . .	Over west branch of Westfield River.	25½-foot concrete beam.
Becket . . .	Over west branch of Westfield River.	25-foot concrete beam.
Bernardston . . .	Over Falls River . . .	60-foot concrete arch.
Bourne . . .	Over New York, New Haven & Hartford Railroad.	34½-foot concrete beam.
Cummington . . .	Over east branch of Westfield River.	80-foot concrete arch.
Cummington . . .	Over Westfield River . . .	38-foot concrete beam.
Cummington . . .	Over branch of Westfield River.	36-foot concrete beam.
Essex . . .	One causeway . . .	Riprap on work.
Falmouth . . .	Over Coonemosset River . . .	12½-foot concrete slab.
Gill . . .	Over brook . . .	11-foot concrete slab.
Goshen . . .	Over Stones Brook . . .	30-foot concrete beam.
Goshen . . .	Over Swift River . . .	33-foot concrete beam.
Grafton . . .	Over brook . . .	12-foot concrete slab.
Haverhill . . .	Amesbury Road . . .	Retaining wall.
Hingham . . .	Otis and Summer streets . . .	Retaining wall and 2-span concrete beam.
Rowley (Newburyport Turnpike).	Over Mill River . . .	Concrete extension of 18-foot stone arch.
Southwick . . .	Over brook . . .	13½-foot concrete beam.
Southwick . . .	Over Uncle Oliver's Brook	23½-foot concrete beam.

CONTEMPLATED BRIDGES AND STRUCTURES — *Continued.**Plans, Studies or Estimates made — Concluded.*

Town.	Locality.	Character of Structure.
Sutton . . .	Over Cold Spring Brook .	14-foot concrete beam.
Topsfield (Newbury- port Turnpike).	- -	Concrete retaining wall.
Topsfield (Newbury- port Turnpike).	- -	6-foot by 9-foot concrete culvert and 3.5- foot by 5-foot cattle pass.
Topsfield (Newbury- port Turnpike).	Over Ipswich River . .	Concrete alteration to 32-foot stone arch.
Topsfield (Newbury- port Turnpike).	Over Howlett Street . .	20-foot concrete beam.
Topsfield (Newbury- port Turnpike).	Over Mile Brook . .	10-foot concrete slab.
Wayland . . .	Over Sudbury River . .	80-foot 2-span concrete beam.
Westfield . . .	Over Westfield River . .	35-foot concrete beam; also strengthen- ing the present Frog Hole bridge.
Windsor . . .	Over branch of Housatonic River.	Addition to fence.

*Examinations, Reports, Estimates, etc., made at the Request of Cities and  
Towns.*

CITIES AND TOWNS.	Locality.	Character of Work.
Acton <sup>1</sup> . . .	Over Assabet River . .	2-span concrete through girder; spans 32 feet each.
Ashland <sup>1</sup> . . .	Over Sudbury River . .	25-foot concrete beam.
Belchertown (Ware line).	Over Swift River . .	Examination and report on Red bridge; investigation of stresses of 38-foot wooden "A" frame.
Dana . . .	Over Ware River . .	19-foot concrete beam; alternate, of wood.
Dedham . . .	Over Mother Brook, Wash- ington Street.	19-foot concrete beam.
Dighton (Somerset line).	Over Broad Cove . .	2-span concrete beam, 28 feet each.
East Bridgewater <sup>1</sup> .	Over Salisbury River, Pleas- ant Street.	30-foot concrete beam, and restoration of 16-foot stone arch at Central Street.
Eastham . . .	Over Broad Meadow Creek .	For repairing present bridge.
Framingham . .	Over Boston & Albany Rail- road, Fountain Street.	Condition of bridge.
Huntington . .	Over Westfield River . .	Condition of bridge.
Maynard . . .	Over Assabet River . .	Widening of stone arch, 2 spans of 27 feet each.
Middleborough (Bridge- water line).	Over Taunton River . .	Woodard's bridge, and Titicut (or Sturtevant's) bridge.
Newbury . . .	Over Plum Island River .	Condition of bridge and reconstruction necessary.
Northbridge . .	Over Blackstone River . .	2-span concrete beam, 39 feet each; al- ternate, 1-span concrete arch, 78 feet; alternate, 2-span concrete beam, 47 feet each.
Orange . . .	At Slovan's Mill . .	Condition of bridge and reconstruction.
Pembroke . . .	Furnace and Oldham ponds	6-foot by 5-foot concrete slab culvert.
Plymouth . . .	Over Eel River . .	27½-foot concrete beam; alternate, with abutment of plain concrete.
Shelburne (Buckland line).	Over Deerfield River . .	22-foot iron truss.
Somerset (Swansea line).	Over Lee River . .	Condition of bridge.

<sup>1</sup> Construction supervision.

CONTEMPLATED BRIDGES AND STRUCTURES — *Continued.**Examinations, Reports, Estimates, etc., made at the Request of Cities and Towns — Concluded.*

CITIES AND TOWNS.	Locality.	Character of Work.
Sunderland (Deerfield line).	Over Connecticut River . .	Strengthening floor.
Taunton . . .	Over Taunton River . .	Advice to city officials.
Townsend . . .	Over Willard Brook . .	Condition of bridge and reconstruction.
Uxbridge . . .	Over Blackstone River . .	Analysis of truss.
Walpole . . .	Washington Street, Mill Pond.	Restoration of 2-span stone arch, spans 15 and 16 feet, respectively.
Walpole . . .	Over New York, New Haven & Hartford Railroad.	Condition of floor and repaving with creosoted wood block.
West Stockbridge .	Over Williams River . .	Condition of bridge and reconstruction.
Woburn <sup>1</sup> . . .	Over Aberjona River . .	18-foot concrete beam.

<sup>1</sup> Construction supervision.*Examinations, Reports, Estimates, etc., in Accordance with Certain Legislation.*

CITIES AND TOWNS.	Locality.	Character of Work.
Gloucester . . .	Over Lobster Cove (ch. 52, Res. of 1920).	Condition of present bridge; plans and estimates for new structure.
Wilbraham . . .	Underpass, Boston & Albany Railroad (ch. 72, Res. of 1920).	Examination of site and study of proposed designs.

*Examinations, Reports, Estimates, etc., at the Request of County Commissioners.*

CITIES AND TOWNS.	Locality.	Character of Work.
Dover (Needham line)	Over Charles River . .	A 2-span concrete beam, spans 65 feet each; alternate, 65-foot concrete arch.
Dracut . . .	Over Beaver Brook . .	2-span wall and arch extension, spans 12 feet each.
Gloucester . . .	Good Harbor Beach . .	Plans submitted for beam and slab bridges.
Hadley (Northampton line).	Over Connecticut River .	Strength of floor.
Norfolk . . .	Over Stop River . .	9½-foot concrete arch.
Williamsburg (Haydenville Underpass).	- -	Condition and study of reconstruction.

CONTEMPLATED BRIDGES AND STRUCTURES — *Concluded.**Examinations and Reports by Direction of the Department.*

CITIES AND TOWNS.	Locality.	Subject.
Brookfield . . .	Dunn Brook bridge . . .	Damage by truck.
Cummington . . .	Old covered wooden bridge	Condition of bridge.
Newbury . . .	Over Parker River . . .	Condition of bridge.
Norfolk . . .	Main Street culvert . . .	Damage by truck.
North Adams . . .	Culvert . . . . .	Raising head walls.
North Adams . . .	Over Hoosic River . . .	Condition of bridge.
Russell . . . . .	- - - - -	Reconstruction of retaining wall.
Shelburne (Buckland line).	Over Deerfield River . . .	Cleaning and painting bridge.
Truro . . . . .	Pamet River . . . . .	Culvert, tidal flow.
Upton . . . . .	Flume . . . . .	Reconstruction.
Waltham . . . . .	Double culvert . . . . .	Condition.
Wareham (Marion line)	Over Buttermilk Bay . . .	Condition of old bridge being used during construction of new bridge.
Westminster . . .	Three bridges . . . . .	Condition.

BRIDGE OVER THE MERRIMACK RIVER BETWEEN NEWBURY-  
PORT AND SALISBURY.

The charge of this bridge was placed in the Massachusetts Highway Commission, and the same made a State highway by the provisions of chapter 716, Acts of 1912, which also provided that the expense of keeping the bridge in good repair for travel, of operating the draw, and of maintaining the bridge shall be paid by the Commonwealth.

The total number of draw openings at this bridge from January to December, inclusive, during each of the years 1918-21, were: —

YEAR.	Openings.
1918 . . . . .	223
1919 . . . . .	209
1920 . . . . .	199
1921 . . . . .	329

The expenditures for 1921 were \$7,253.83.

The total expenditure from 1912 to 1921, inclusive, was \$69,957.44.

BRIDGE OVER TAUNTON GREAT RIVER BETWEEN FALL RIVER  
AND SOMERSET.

The charge of this bridge was placed in the Massachusetts Highway Commission, and the same made a State highway by the provisions of chapter 717, Acts of 1912, which also provided that the expense of keeping the bridge in good repair for travel, and of operating the draw and maintaining the bridge, shall be paid by the Commonwealth; furthermore, that the expense incurred and to be incurred by the county of Bristol in restoring the bridge to a sound condition and in making it suitable for travel shall be borne by the Commonwealth.

The total number of draw openings at this bridge from January to December, inclusive, during each of the years 1918-21, were: —

YEAR.	Openings.
1918 . . . . .	759
1919 . . . . .	657
1920 . . . . .	1,860
1921 . . . . .	2,539

The expenditures for 1921 were \$16,863.57.

The total expenditure from 1912 to 1921, inclusive, was \$155,572.80.

CONSTRUCTION AND REPAIR OF TOWN AND COUNTY  
WAYS.

Chapter 90 of the General Laws was amended by section 1 of chapter 112 of the Acts of 1921, as follows:—

SECTION 1. Chapter ninety of the General Laws is hereby amended by striking out section thirty-four and inserting in place thereof the following:—*Section 34.* The fees and fines received under the preceding sections, together with all other fees received by the registrar or any other person under the laws of the commonwealth relating to the use and operation of motor vehicles, shall be paid by the registrar or by the person collecting the same into the treasury of the commonwealth. Out of said fees and fines there shall be appropriated such amount as is necessary to carry out the provisions of law regulating the use of motor vehicles. The balance then remaining may be appropriated for expenditure under the direction of the division for maintaining, repairing, improving and constructing town and county highways together with any money which any town or county may appropriate for said purpose to be used on the same highway, and said way shall remain a town or county way; for expenditure under the direction of the division for maintaining, repairing and improving state highways, and for constructing state highways to an amount not exceeding that part of the cost thereof which is not assessed upon the counties under the provisions of section nine of chapter eighty-one; and for meeting the commonwealth's share of the expenses of the metropolitan district commission for maintaining boulevards in the metropolitan parks district under section fifty-six of chapter ninety-two.

During the year the Division has contracted for work to be done in the towns named in the following table, which also shows the type of road, the length contracted for, and the allotments or contributions by the State, towns and counties:—



COUNTIES AND TOWNS.	CONTRIBUTIONS.			Type of Road.	Length Con- tracted for (Feet).
	State.	Town.	County.		
<i>Barnstable County.</i>					
Brewster . . .	\$3,000 00	\$3,000 00	—	Bituminous concrete .	6,000
Falmouth . . .	10,000 00	10,000 00	—	Bituminous concrete .	4,000
Sandwich . . .	1,000 00	1,000 00	—	Gravel . . . . .	3,600
<i>Berkshire County.</i>					
Alford . . .	400 00	400 00	—	Gravel . . . . .	200
Becket . . .	300 00	300 00	—	Gravel . . . . .	600
Egremont . . .	1,000 00	1,000 00	—	Gravel . . . . .	1,095
Hancock . . .	2,000 00	—	—	Gravel . . . . .	6,189
Monterey . . .	400 00	400 00	—	Gravel . . . . .	1,200
New Marlborough .	2,500 00	2,500 00	\$1,000 00	Gravel . . . . .	5,535
Otis . . .	500 00	500 00	—	Gravel . . . . .	18,500
Richmond . . .	1,500 00	1,000 00	—	Gravel . . . . .	900
Sheffield . . .	1,000 00	1,000 00	1,000 00	Repair and oiling . .	16,100
Tyringham . . .	1,000 00	1,000 00	1,000 00	Waterbound macadam .	1,000
West Stockbridge .	2,000 0	2,000 00	2,000 00	Gravel . . . . .	2,900
<i>Bristol County.</i>					
Berkley . . .	1,500 00	1,500 00	1,000 00	Repair and oiling . .	33,205
Dartmouth . . .	3,000 00	3,000 00	—	Bituminous macadam .	2,650
Dighton . . .	3,000 00	3,000 00	—	Waterbound macadam .	1,884
Dighton . . .	5,000 00	6,000 00	5,000 00	Bituminous macadam .	5,750
Easton . . .	4,000 00	4,000 00	—	Bituminous macadam .	1,785
Mansfield . . .	7,500 00	7,500 00	7,500 00	Bituminous macadam .	3,406
Rehoboth . . .	3,000 00	3,000 00	3,000 00	Gravel . . . . .	7,251
Seekonk . . .	3,000 00	3,000 00	3,000 00	Bituminous macadam .	1,350
Swansea . . .	2,750 00	2,750 00	2,750 00	Waterbound macadam .	1,575
Westport . . .	1,500 00	3,000 00	1,500 00	Bituminous macadam .	2,470
<i>Essex County.</i>					
Andover . . .	7,018 29	5,000 00	5,000 00	Bituminous macadam .	3,200
Danvers . . .	10,000 00	10,000 00	10,000 00	Bituminous macadam .	5,306
Essex . . .	1,000 00	2,500 00	—	Repair and oiling . .	31,680
Georgetown . . .	2,500 00	2,500 00	2,500 00	Gravel . . . . .	4,300
Ipswich . . .	4,000 00	4,000 00	4,000 00	Gravel . . . . .	19,600
Lynnfield . . .	10,000 00	10,000 00	10,000 00	Bituminous macadam .	3,726
Marblehead . . .	20,000 00	40,000 00	20,000 00	Bituminous madacam .	11,053
Rowley . . .	500 00	500 00	500 00	Gravel . . . . .	750
Swampscott . . .	7,500 00	15,000 00	7,500 00	Bituminous macadam .	3,750
West Newbury . .	1,500 00	1,500 00	1,500 00	Gravel . . . . .	1,700

COUNTIES AND TOWNS.	CONTRIBUTIONS.			Type of Road.	Length Contracted for (Feet).
	State.	Town.	County.		
<i>Franklin County.</i>					
Ashfield . . .	\$1,000 00	\$1,000 00	\$1,000 00	Gravel . . . . .	1,400
Bernardston . . .	8,000 00	8,000 00	-	Bituminous macadam . .	1,750
Buckland . . .	1,500 00	1,500 00	-	Gravel . . . . .	1,000
Colrain . . .	1,600 00	1,600 00	-	Gravel . . . . .	2,750
Conway . . .	2,000 00	2,000 00	-	Gravel . . . . .	1,400
Montague . . .	5,000 00	5,000 00	-	Gravel . . . . .	5,500
Orange . . .	1,000 00	1,000 00	-	Gravel . . . . .	1,600
Shelburne . . .	400 00	400 00	-	Repair and oiling . . .	8,504
Warwick . . .	400 00	400 00	-	Gravel . . . . .	400
Wendell . . .	500 00	500 00	-	Gravel . . . . .	450
<i>Hampden County.</i>					
Agawam . . .	20,000 00	20,000 00	-	Bituminous macadam . .	5,860
Blandford . . .	1,000 00	1,000 00	-	Waterbound macadam . .	975
Chester . . .	1,000 00	1,000 00	-	Gravel . . . . .	2,050
East Longmeadow .	500 00	500 00	-	Gravel . . . . .	3,700
Monson . . .	2,500 00	2,500 00	-	Bituminous macadam . .	2,100
Southwick . . .	500 00	500 00	-	Gravel . . . . .	600
Tolland . . .	300 00	300 00	-	Gravel . . . . .	350
West Springfield .	10,000 00	20,000 00	-	Cement concrete . . .	2,200
Wilbraham . . .	5,000 00	5,000 00	-	Bituminous macadam . .	2,200
<i>Hampshire County.</i>					
Belchertown . . .	2,000 00	3,200 00	2,000 00	Gravel . . . . .	2,850
Easthampton . . .	1,500 00	1,500 00	-	Gravel . . . . .	1,500
Hadley . . .	15,000 00	15,000 00	-	Bituminous macadam . .	9,500
Prescott . . .	400 00	400 00	-	Concrete culvert and ap- proaches.	250
Southampton . . .	500 00	500 00	-	Gravel . . . . .	600
<i>Middlesex County.</i>					
Acton . . .	10,000 00	10,000 00	10,000 00	Bituminous macadam . .	4,400
Ashby . . .	1,000 00	1,000 00	1,000 00	Gravel . . . . .	2,000
Ashland . . .	9,000 00	9,000 00	9,000 00	Bituminous macadam . .	5,326
Ashland . . .	2,500 00	2,500 00	2,500 00	Concrete bridge and ap- proaches.	534
Bedford . . .	1,000 00	1,000 00	1,000 00	Gravel . . . . .	1,500
Bedford . . .	5,000 00	5,000 00	5,000 00	Bituminous macadam . .	2,400
Boxborough . . .	700 00	700 00	700 00	Gravel . . . . .	800
Burlington . . .	800 00	800 00	800 00	Repair and oiling . . .	17,160
Burlington . . .	2,000 00	2,000 00	2,000 00	Gravel . . . . .	2,300

COUNTIES AND TOWNS.	CONTRIBUTIONS.			Type of Road.	Length Contracted for (Feet).
	State.	Town.	County.		
<i>Middlesex County — Con.</i>					
Carlisle . . .	\$500 00	\$500 00	\$500 00	Gravel . . .	1,500
Chelmsford . .	12,000 00	12,000 00	12,000 00	Bituminous macadam .	5,800
Dracut . . .	2,000 00	2,000 00	2,000 00	Bituminous macadam .	750
Dunstable . .	1,750 00	1,750 00	1,750 00	Repair and oiling . .	38,016
Framingham . .	7,000 00	7,000 00	7,000 00	Bituminous macadam .	2,400
Framingham . .	3,000 00	3,000 00	3,000 00	Gravel . . .	4,300
Holliston . .	2,500 00	2,500 00	2,500 00	Gravel . . .	4,000
Hopkinton . .	3,000 00	3,000 00	3,000 00	Waterbound macadam .	2,000
Hudson . . .	3,000 00	3,000 00	3,000 00	Gravel . . .	5,600
Lincoln . . .	7,500 00	7,500 00	7,500 00	Bituminous macadam .	3,286
Littleton . . .	3,000 00	3,000 00	3,000 00	{ Bituminous macadam .	576
Maynard . . .	3,000 00	3,000 00	3,000 00	{ Gravel . . .	6,500
Natick . . .	2,000 00	2,000 00	2,000 00	Gravel . . .	4,000
North Reading .	900 00	900 00	900 00	Gravel . . .	1,900
Sherborn . . .	1,500 00	1,500 00	1,500 00	Repair and oiling . .	49,840
Stoneham . . .	1,700 00	1,700 00	1,700 00	Gravel . . .	2,700
Stow . . .	500 00	500 00	500 00	Bituminous macadam .	1,310
Stow . . .	5,000 00	5,000 00	5,000 00	Gravel . . .	1,300
Sudbury . . .	598 43	598 43	598 43	Bituminous macadam .	3,000
Sudbury . . .	2,000 00	2,000 00	2,000 00	Repair and oiling . .	29,830
Tyngsborough .	500 00	500 00	500 00	Gravel . . .	4,000
Wakefield . .	2,000 00	2,000 00	2,000 00	Gravel . . .	1,320
Wayland . . .	2,700 00	2,700 00	2,700 00	Gravel . . .	1,000
Wayland . . .	2,500 00	7,000 00	2,500 00	Bituminous macadam .	1,000
Westford . . .	5,000 00	5,000 00	5,000 00	Bituminous macadam .	654
Wilmington . .	2,000 00	2,000 00	2,000 00	{ Repair and oiling . .	50,688
				{ Bituminous macadam .	600
				{ Plutonic pavement .	600
				{ Repair and oiling . .	20,800
				Waterbound macadam .	2,000
<i>Nantucket County.</i>					
Nantucket . .	3,500 00	3,500 00	—	Bituminous concrete .	2,332
<i>Norfolk County.</i>					
Bellingham . .	1,000 00	1,000 00	1,000 00	Gravel . . .	2,000
Bellingham . .	2,000 00	—	—	Repair and oiling . .	24,400
Canton . . .	15,000 00	15,000 00	15,000 00	Bituminous macadam .	3,584
Franklin . . .	4,000 00	4,000 00	4,000 00	Gravel . . .	5,000
Holbrook . . .	5,000 00	5,000 00	5,000 00	Bituminous macadam .	2,510
Medfield . . .	1,500 00	1,500 00	1,500 00	Gravel . . .	1,420
Medway . . .	3,000 00	4,000 00	3,000 00	Gravel . . .	7,420

COUNTIES AND TOWNS.	CONTRIBUTIONS.			Type of Road.	Length Con- tracted for (Feet).
	State.	Town.	County.		
<i>Norfolk County—</i>					
Con.					
Millis . . .	\$3,000 00	\$3,000 00	\$3,000 00	Gravel . . . .	4,270
Millis . . .	1,300 00	1,400 00	1,300 00	Repair and oiling . .	13,200
Norfolk . . .	1,500 00	1,500 00	1,500 00	Gravel . . . .	1,111
Sharon . . .	4,000 00	4,000 00	4,000 00	Bituminous macadam .	3,378
Stoughton . . .	6,000 00	6,000 00	6,000 00	Bituminous macadam .	2,300
Walpole . . .	4,000 00	8,358 35	4,000 00	Bituminous concrete .	5,740
Walpole . . .	1,200 00	1,200 00	1,200 00	Wood-block paving . .	80
Wrentham . . .	5,000 00	5,000 00	5,000 00	Gravel . . . .	4,050
<i>Plymouth County.</i>					
Bridgewater . . .	5,000 00	5,000 00	5,000 00	Bituminous macadam .	4,800
Carver . . .	3,000 00	3,000 00	3,000 00	Bituminous concrete .	3,300
Duxbury . . .	250 00	250 00	250 00	Repair and oiling . .	1,300
East Bridgewater .	3,000 00	4,000 00	2,000 00	Bituminous concrete .	2,070
East Bridgewater .	3,000 00	3,000 00	3,000 00	Two bridges . . . .	—
Hanover . . .	5,000 00	15,350 00	5,000 00	Repair and oiling . .	27,212
Hanson . . .	2,000 00	2,000 00	—	Waterbound macadam .	2,300
Marshfield . . .	7,000 00	3,000 00	5,000 00	Gravel . . . .	18,750
Norwell . . .	5,000 00	5,000 00	5,000 00	Waterbound macadam .	4,300
Pembroke . . .	8,000 00	13,000 00	8,000 00	Bituminous concrete .	8,908
Plympton . . .	5,000 00	5,000 00	5,000 00	Bituminous concrete .	2,750
West Bridgewater .	3,000 00	3,000 00	—	Bituminous concrete .	1,657
<i>Worcester County.</i>					
Barre . . .	2,000 00	3,000 00	—	Gravel . . . .	3,000
Berlin . . .	1,500 00	1,500 00	—	Repair and oiling . .	36,960
Boylston . . .	2,000 00	2,000 00	2,000 00	Repair and oiling . .	38,016
Dana . . .	700 00	700 00	700 00	Gravel . . . .	2,125
Gardner . . .	2,500 00	2,500 00	—	Bituminous macadam .	1,050
Hardwick . . .	20,000 00	60,000 00	20,000 00	Cement concrete . .	16,060
Harvard . . .	9,000 00	9,000 00	9,000 00	Bituminous macadam .	4,300
Leicester . . .	5,000 00	5,000 00	5,000 00	Bituminous macadam .	2,100
Mendon . . .	500 00	500 00	500 00	Gravel . . . .	700
Millbury . . .	24,000 00	41,000 00	20,000 00	Cement concrete . .	8,249
Petersham . . .	500 00	500 00	500 00	Gravel . . . .	1,200
Shrewsbury . . .	5,000 00	5,000 00	5,000 00	Bituminous macadam .	2,600
Sterling . . .	2,000 00	2,000 00	2,000 00	Gravel . . . .	1,700
Westminster . . .	1,000 00	1,000 00	1,000 00	Gravel . . . .	1,700

The expenditures during the year in various counties were: —

COUNTY.	Amount.
Barnstable . . . . .	\$50,426 13
Berkshire . . . . .	69,095 27
Bristol . . . . .	28,343 08
Dukes . . . . .	7,717 00
Essex . . . . .	89,870 24
Franklin . . . . .	23,669 42
Hampden . . . . .	67,264 72
Hampshire . . . . .	26,672 23
Middlesex . . . . .	139,024 51
Nantucket . . . . .	3,500 00
Norfolk . . . . .	57,110 98
Plymouth . . . . .	117,125 74
Worcester . . . . .	85,484 44

Details of the foregoing expenditures follow: —

*Barnstable County.*

Bourne . . . . .	\$31,683 78
Brewster . . . . .	2,969 82
Dennis . . . . .	2,409 82
Falmouth . . . . .	9,443 22
Mashpee . . . . .	3,898 79
Sandwich . . . . .	20 70

*Berkshire County.*

Alford . . . . .	400 00
Becket . . . . .	300 00
Cheshire . . . . .	928 00
Egremont . . . . .	1,000 00
Hancock . . . . .	2,000 00
Lanesborough . . . . .	14,151 67
New Ashford . . . . .	29,786 84
New Marlborough . . . . .	2,000 00
Otis . . . . .	500 00
Richmond . . . . .	1,500 00
Savoy . . . . .	500 00
Sheffield . . . . .	1,956 13
Tyringham . . . . .	1,000 00
Washington . . . . .	1,000 00
Williamstown . . . . .	12,072 63

*Bristol County.*

Berkley . . . . .	\$1,520 96
Dartmouth . . . . .	2,000 00
Dighton . . . . .	8,000 00
Easton . . . . .	3,000 00
Mansfield . . . . .	7,031 79
Rehoboth . . . . .	3,256 23
Somerset . . . . .	39 68
Swansea . . . . .	1,994 42
Westport . . . . .	1,500 00

*Dukes County.*

Tisbury . . . . .	7,717 00
-------------------	----------

*Essex County.*

Andover . . . . .	17,619 54
Danvers . . . . .	11,050 50
Essex . . . . .	1,000 00
Groveland . . . . .	668 13
Ipswich . . . . .	5,727 44
Lynnfield . . . . .	6,672 67
Marblehead . . . . .	10,014 40
Newbury . . . . .	3,173 77
Rowley . . . . .	2,981 86
Salisbury . . . . .	21,111 48
Saugus . . . . .	153 00
Swampscott . . . . .	5,000 00
Topsfield . . . . .	3,197 45
West Newbury . . . . .	1,500 00

*Franklin County.*

Ashfield . . . . .	1,000 00
Bernardston . . . . .	951 79
Buckland . . . . .	1,469 30
Colrain . . . . .	800 00
Montague . . . . .	10,000 00
New Salem . . . . .	5,973 75
Orange . . . . .	1,000 00
Rowe . . . . .	1,794 88
Shelburne . . . . .	279 70
Warwick . . . . .	400 00

*Hampden County.*

Blandford . . . . .	1,000 00
Chester . . . . .	999 76
East Longmeadow . . . . .	5,102 12

Ludlow . . . . .	\$200 00
Southwick . . . . .	494 45
Tolland . . . . .	300 00
West Springfield . . . . .	10,000 00
Westfield . . . . .	47,368 39
Wilbraham . . . . .	1,800 00

*Hampshire County.*

Cummington . . . . .	79 45
Easthampton . . . . .	3,493 20
Hadley . . . . .	17,199 58
Hatfield . . . . .	5,000 00
Prescott . . . . .	400 00
Southampton . . . . .	500 00

*Middlesex County.*

Acton . . . . .	9,685 98
Ashby . . . . .	2,000 00
Ashland . . . . .	10,095 15
Ayer . . . . .	1,702 29
Bedford . . . . .	5,877 60
Billerica . . . . .	33,736 31
Boxborough . . . . .	500 00
Burlington . . . . .	800 00
Carlisle . . . . .	500 00
Chelmsford . . . . .	11,999 40
Dracut . . . . .	3,147 92
Dunstable . . . . .	1,750 00
Framingham . . . . .	8,246 68
Holliston . . . . .	1,350 66
Hopkinton . . . . .	3,000 00
Hudson . . . . .	5,488 73
Lexington . . . . .	2,856 77
Lincoln . . . . .	5,645 24
Littleton . . . . .	2,389 23
Maynard . . . . .	2,958 25
Natick . . . . .	1,833 33
North Reading . . . . .	900 00
Sherborn . . . . .	1,500 00
Stoneham . . . . .	1,700 00
Stow . . . . .	6,767 30
Sudbury . . . . .	2,224 93
Tyngsborough . . . . .	500 00
Wakefield . . . . .	1,902 07
Wayland . . . . .	3,300 00
Westford . . . . .	2,666 67
Wilmington . . . . .	2,000 00

*Nantucket County.*

Nantucket . . . . .	\$3,500 00
---------------------	------------

*Norfolk County.*

Bellingham . . . . .	2,997 18
Canton . . . . .	17,811 49
Franklin . . . . .	4,000 00
Holbrook . . . . .	6,230 62
Medfield . . . . .	1,500 00
Medway . . . . .	3,497 42
Millis . . . . .	5,072 18
Norfolk . . . . .	2,593 07
Randolph . . . . .	2,762 35
Sharon . . . . .	5,069 62
Walpole . . . . .	4,000 00
Westwood . . . . .	450 30
Weymouth . . . . .	1,028 00
Wrentham . . . . .	98 75

*Plymouth County.*

Bridgewater . . . . .	5,000 00
Duxbury . . . . .	10,225 00
East Bridgewater . . . . .	3,463 50
Halifax . . . . .	3,600 00
Hanover . . . . .	3,500 00
Hanson . . . . .	2,457 10
Kingston . . . . .	32,330 34
Lakeville . . . . .	1,417 98
Marshfield . . . . .	7,000 00
Norwell . . . . .	4,282 00
Pembroke . . . . .	4,748 10
Plympton . . . . .	3,552 42
Wareham . . . . .	30,290 23
West Bridgewater . . . . .	5,259 07

*Worcester County.*

Ashburnham . . . . .	1,027 18
Berlin . . . . .	1,496 79
Dudley . . . . .	18,227 20
Gardner . . . . .	2,500 00
Harvard . . . . .	741 35
Holden . . . . .	519 24
Leicester . . . . .	6,890 00
Millbury . . . . .	18,883 32
North Brookfield . . . . .	2,268 29



Oxford . . . . .	\$3,100 00
Petersham . . . . .	2,177 73
Princeton . . . . .	13,615 23
Shrewsbury . . . . .	1,996 19
Sterling . . . . .	2,023 88
Templeton . . . . .	2,804 20
Westborough . . . . .	7,213 84
<hr/>	
Total . . . . .	\$765,303 76

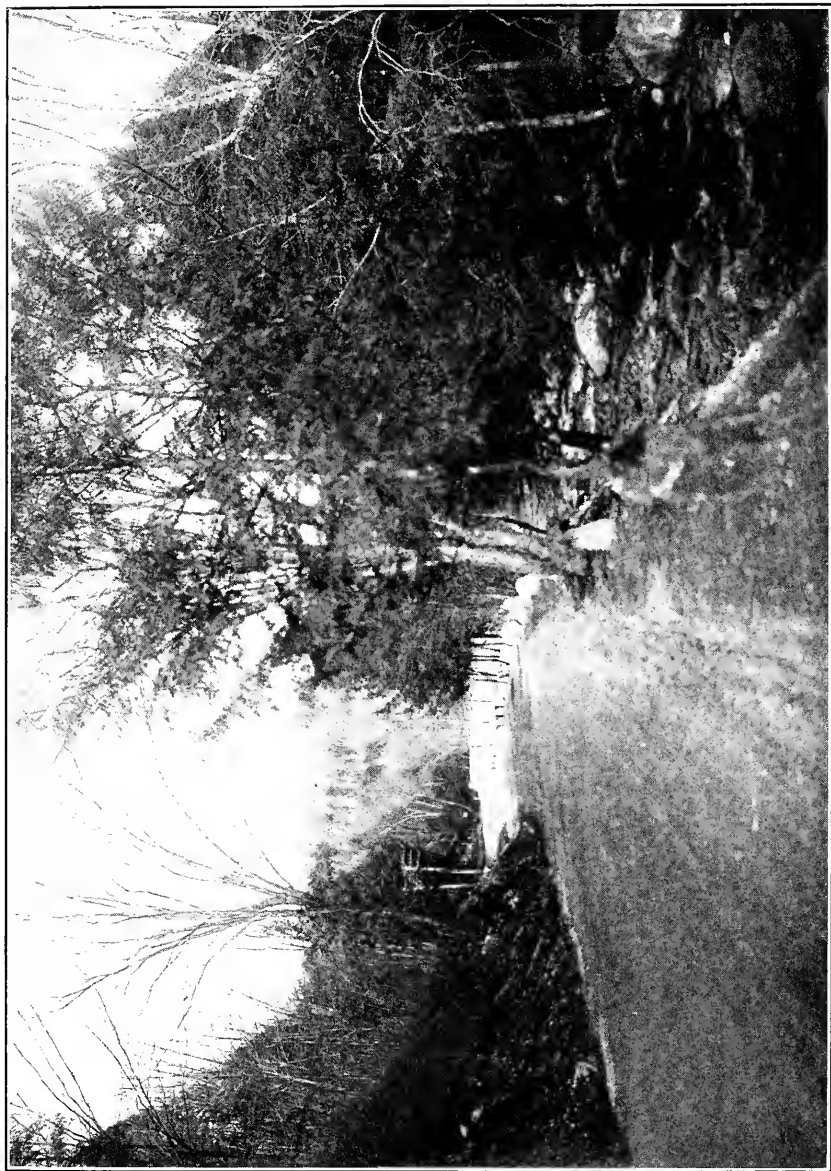
## HIGHWAYS IN THE FIVE WESTERN COUNTIES.

(Chapter 221, General Acts of 1915.)

Chapter 572, Acts of 1920, in addition to authorizing the Division to expend an additional sum of \$1,000,000 before Nov. 30, 1924, for the purpose of completing the construction of certain highways in the five western counties of the State, under the provisions of chapter 221 of the General Acts of 1915, provides that one-fourth of any money which may be expended under the provisions of section 1 thereof for a highway in any county shall be repaid by the county to the Commonwealth in such instalments and at such times, within six years thereafter, as the Division, with the approval of the Auditor of the Commonwealth, shall determine; also that a sum equal to the money so repaid shall before Nov. 30, 1926, be expended by the Division without specific appropriation, either in completing the highways mentioned in said chapter 221, or in improving a highway in any town in the five western counties that is not situated upon one of the highways mentioned in said act, provided that the valuation of the town does not exceed \$1,000,000, the highway so improved to be a main highway connecting such town with its railroad station, with a main through highway, or with an adjoining city or town.

The total expenditures during the year for the construction of highways in Cummington, Dalton, Windsor and Goshen; Otis and Sandisfield; Washington and Hinsdale; Worthington, Cummington and Huntington; Peru; Cummington and Plainfield; Belchertown; Southwick; Ashfield and Deerfield; Gill and Bernardston; Barre and Oakham; Warwick and Chesterfield were \$381,090.53, details of which follow: —

	<i>Route No. 2.</i>	
Cummington . . . . .		\$223 96
Dalton . . . . .		3,705 23
Windsor . . . . .		58,048 46
Goshen . . . . .		2,644 39



Scenic highway in Becket.



*Route No. 3.*

Otis . . . . .	\$180 38
Sandisfield . . . . .	42 50

*Route No. 4.*

Washington . . . . .	80,073 32
Hinsdale . . . . .	248 64

*Route No. 5.*

Worthington . . . . .	24,170 97
Cummington . . . . .	114 80
Huntington . . . . .	75,581 77

*Route No. 6.*

Peru . . . . .	10,453 19
----------------	-----------

*Route No. 7.*

Cummington . . . . .	275 29
Plainfield . . . . .	404 50

*Route No. 8.*

Belchertown . . . . .	11,746 41
-----------------------	-----------

*Route No. 9.*

Southwick . . . . .	13,945 61
---------------------	-----------

*Route No. 10.*

Ashfield . . . . .	928 86
Deerfield . . . . .	48 00

*Route No. 11.*

Gill . . . . .	13,235 90
Bernardston . . . . .	46 48

*Route No. 12.*

Barre . . . . .	61,775 78
Oakham . . . . .	6,109 69

*Route No. 14.*

Warwick . . . . .	4,989 12
-------------------	----------

*Route No. 17.*

Chesterfield . . . . .	12,097 28
------------------------	-----------

---

Total . . . . .	\$381,090 53
-----------------	--------------

## CONSTRUCTION AND REPAIR OF WAYS NOT STATE HIGHWAYS IN CERTAIN TOWNS.

Section 23 of chapter 81 of the General Laws provides that —

The division shall allot for towns having a valuation not exceeding one million dollars, in such amounts as it determines, five per cent of the amount appropriated each year for the construction of state highways, and shall expend the same in constructing and repairing ways therein, whether or not such towns shall have made any appropriation or contribution in excess of the usual annual appropriations for highway purposes. The division may also allot for and expend in such towns for like purposes, in addition to any expenditure hereinbefore provided for, a further amount of five per cent of said amount appropriated, if such towns appropriate or contribute an amount to be expended under this section equal to that allotted by the division. The division may likewise allot and expend, in towns the valuation of which exceeds one million dollars, not more than five per cent of the amount appropriated each year for the construction of state highways, if such towns appropriate or contribute, to be expended under this section, in addition to the average annual appropriations for repairs of highways in such towns for the preceding five years, exclusive of appropriations or contributions under this section, an amount equal to the amount allotted by the division. No town the valuation of which is less than one million dollars, and which makes no appropriation or contribution under this section, shall receive in any one year more than forty per cent of its average annual appropriations for highway purposes for the preceding five years; provided, that the division may allot in any year a sum not exceeding four hundred dollars to any such town the average annual appropriation of which for highway purposes for the preceding five years does not exceed one thousand dollars. Such allotments and expenditures shall be made only upon petition of the selectmen, and section nine shall apply thereto, but a way constructed or repaired under this section shall not thereby become a state highway.

The total expenditures during the year in various towns in Barnstable, Berkshire, Essex, Franklin, Hampden, Hampshire, Nantucket and Worcester counties, under section 23 of chapter 81 of the General Laws, under contracts made previous to 1921, were \$74,533.24. Details of the foregoing expenditures follow: —

*Barnstable County.*

Falmouth . . . . .	\$500 00
--------------------	----------

*Berkshire County.*

Hinsdale . . . . .	896 24
Mount Washington . . . . .	200 00
New Marlborough . . . . .	430 00
Tyringham . . . . .	100 00
Williamstown . . . . .	12,946 81

*Essex County.*

Rockport . . . . .	3,000 00
--------------------	----------

*Franklin County.*

Colrain . . . . .	1,599 98
Warwick . . . . .	400 00
Wendell . . . . .	199 93

*Hampden County.*

Agawam . . . . .	9,433 94
Blandford . . . . .	1,250 00
Chester . . . . .	989 96
Ludlow . . . . .	750 00
Monson . . . . .	2,500 00
Palmer . . . . .	28,308 99
Southwick . . . . .	498 75
Wilbraham . . . . .	4,517 00

*Hampshire County.*

Enfield . . . . .	600 00
Granby . . . . .	999 96
Middlefield . . . . .	161 68

*Nantucket County.*

Nantucket . . . . .	1,750 00
---------------------	----------

*Worcester County.*

Gardner . . . . .	2,500 00
-------------------	----------

Total . . . . .	\$74,533 24
-----------------	-------------

## MAINTENANCE AND IMPROVEMENT OF PUBLIC WAYS.

(Chapter 155, General Acts of 1918.)

The expenditures during 1921 in various counties, for the maintenance and improvement of public ways, exclusive of State highways in certain towns, under chapter 155, General Acts of 1918, were:—

COUNTIES.	Amount.
Berkshire . . . . .	\$2,966 15
Bristol . . . . .	4,678 41
Franklin . . . . .	1,316 89
Hampden . . . . .	2,421 35
Hampshire . . . . .	5,255 24
Middlesex . . . . .	525 00
Worcester . . . . .	3,155 23

Details of the foregoing expenditures follow:—

*Berkshire County.*

Alford . . . . .	\$204 48
Becket . . . . .	900 00
Hinsdale . . . . .	50 00
Monterey . . . . .	1,075 00
New Marlborough . . . . .	350 00
Sandisfield . . . . .	161 67
Savoy . . . . .	25 00
Washington . . . . .	200 00

*Bristol County.*

Raynham . . . . .	1,678 41
Rehoboth . . . . .	3,000 00

*Franklin County.*

Conway . . . . .	32 40
Gill . . . . .	24 53
Heath . . . . .	85 43
Leverett . . . . .	225 00
Leyden . . . . .	24 53
New Salem . . . . .	175 00
Northfield . . . . .	100 00
Rowe . . . . .	25 00



Shutesbury . . . . .	\$75 00
Sunderland . . . . .	450 00
Warwick . . . . .	100 00

*Hampden County.*

Blandford . . . . .	266 78
Brimfield . . . . .	400 00
Chester . . . . .	479 50
Hampden . . . . .	23 06
Holland . . . . .	75 00
Monson . . . . .	50 00
Southwick . . . . .	227 01
Tolland . . . . .	900 00

*Hampshire County.*

Belchertown . . . . .	250 00
Chesterfield . . . . .	225 00
Cummington . . . . .	800 00
Enfield . . . . .	23 73
Goshen . . . . .	150 00
Granby . . . . .	387 50
Greenwich . . . . .	25 00
Huntington . . . . .	275 00
Middlefield . . . . .	725 00
Pelham . . . . .	176 71
Westhampton . . . . .	1,600 00
Williamsburg . . . . .	221 66
Worthington . . . . .	395 64

*Middlesex County.*

Ashby . . . . .	225 00
Townsend . . . . .	300 00

*Worcester County.*

Ashburnham . . . . .	200 00
Charlton . . . . .	267 10
Hubbardston . . . . .	75 00
New Braintree . . . . .	1,225 00
Oakham . . . . .	154 44
Paxton . . . . .	69 88
Phillipston . . . . .	72 27
Princeton . . . . .	516 69
Royalston . . . . .	74 98
Rutland . . . . .	250 00
Templeton . . . . .	49 87
Westminster . . . . .	200 00

Total . . . . .	\$20,318 27
-----------------	-------------

## REPAIR AND IMPROVEMENT OF PUBLIC WAYS, EXCLUSIVE OF STATE HIGHWAYS, IN CERTAIN TOWNS.

(Sections 26-29 and 31 of chapter 81 of the General Laws, as amended, with reference to section 26, by section 1 of chapter 120 of the Acts of 1921.)

SECTION 26. There may be expended for the repair and improvement of public ways, other than state highways, in towns the valuation of which is less than three million dollars and in which the amount of such valuation, divided by the number of miles of such public ways, hereinafter referred to as the road mileage valuation, is less than fifty thousand dollars, such sums, not exceeding fifty dollars per mile, as the general court may appropriate therefor; provided, that such towns shall contribute or make available for use in connection therewith the following amounts for each mile of said public ways within their respective limits, according to the following schedule based on their road mileage valuation.

1. Less than five thousand dollars, twelve dollars and fifty cents.
2. Five thousand dollars and less than seven thousand five hundred dollars, fifteen dollars.
3. Seven thousand five hundred dollars and less than ten thousand dollars, twenty-five dollars.
4. Ten thousand dollars and less than fifteen thousand dollars, forty dollars.
5. Fifteen thousand dollars and less than twenty thousand dollars, fifty dollars.
6. Twenty thousand dollars and less than thirty thousand dollars, seventy-five dollars.
7. Thirty thousand dollars and less than forty thousand dollars, one hundred dollars.
8. Forty thousand dollars and less than fifty thousand dollars, one hundred and twenty-five dollars.

The amounts appropriated as aforesaid and contributed by the towns shall be expended under the direction of the division on such ways as the division and the selectmen of the towns may agree upon.

Chapter 81 of the General Laws was amended by section 1 of chapter 120 of the Acts of 1921 by adding a new section, as follows: —

SECTION 26A. The county commissioners of the county wherein any public way is to be repaired or improved under the provisions of the preceding section may contribute and expend county funds therefor in accordance with such agreements as the commissioners may make with the division and the selectmen of the town. Said county funds may be

paid to the division or to the town from time to time as the work progresses, to the extent that the said commissioners are satisfied that the work for which agreements have been made is being done in accordance therewith. Such contributions or expenditures by a county shall not render it liable for defects in any way or for damages to persons traveling thereon, and when the work of repair or maintenance for which such contribution or expenditure is made is completed, there shall be no further obligation on the part of the county as to the repair and maintenance thereof until a further contribution is made by the county commissioners for such purpose.

Other sections of chapter 81 are: —

SECTION 27. The said expenditures shall be made only upon the written petition of the selectmen, containing such information as the division may require. No work shall be done under the preceding section in any district where dwelling houses or structures devoted to business are situated at intervals averaging less than two hundred feet for the distance of a quarter of a mile.

SECTION 28. The said towns may contract with the division for the performance of the work authorized by section twenty-six; or, if the selectmen so request, the division may have the work done by such persons and in such manner as it may determine, in which event the towns shall pay their proportionate part of the expense when and as ordered by the division. The cost of any materials, machinery or tools purchased by the division for or on account of the work in any town shall be considered as a part of the expenditures in such town under section twenty-six; and such machinery or tools shall belong to the commonwealth.

SECTION 29. The division shall determine, as nearly as possible, the number of miles of such public ways in towns the valuation of which is less than three million dollars, and shall inform the selectmen of such towns of the contributions required under section twenty-six.

SECTION 31. The valuation of a town for the purposes of this chapter shall be the last preceding valuation made for the purpose of apportioning the state tax.

During the year the Division has contracted for work to be done in the towns named in the following table, which also shows the allotments or contributions by the State and towns: —

COUNTIES AND TOWNS.	ALLOTMENTS.	
	State.	Town.
<b>Barnstable County:</b>		
Eastham . . . . .	\$1,950 00	\$1,950 00
Truro . . . . .	3,000 00	2,200 00
Wellfleet . . . . .	1,750 00	4,500 00
<b>Berkshire County:</b>		
Alford . . . . .	1,000 00	800 00
Becket . . . . .	2,900 00	3,000 00
Florida . . . . .	2,050 00	5,000 00
Hancock . . . . .	1,450 00	1,500 00
Hinsdale . . . . .	1,850 00	2,775 00
Lanesborough . . . . .	2,500 00	3,500 00
Monterey . . . . .	2,500 00	1,250 00
New Marlborough . . . . .	3,000 00	4,000 00
Otis . . . . .	2,950 00	1,000 00
Peru . . . . .	2,250 00	900 00
Sandisfield . . . . .	3,000 00	3,000 00
Savoy . . . . .	2,800 00	1,000 00
Sheffield . . . . .	3,000 00	4,500 00
Tyringham . . . . .	1,150 00	1,150 00
West Stockbridge . . . . .	1,800 00	2,900 00
Windsor . . . . .	3,000 00	825 00
<b>Bristol County:</b>		
Freetown . . . . .	3,000 00	5,000 00
Norton . . . . .	1,200 00	2,400 00
Raynham . . . . .	2,200 00	5,000 00
Rehoboth . . . . .	3,000 00	4,040 00
<b>Essex County:</b>		
West Newbury . . . . .	1,950 00	3,000 00
<b>Franklin County:</b>		
Ashfield . . . . .	3,000 00	3,280 00
Bernardston . . . . .	2,550 00	2,040 00
Charlemont . . . . .	2,500 00	2,000 00
Colrain . . . . .	3,000 00	3,600 00
Conway . . . . .	3,000 00	2,960 00
Gill . . . . .	1,800 00	1,800 00
Hawley . . . . .	2,450 00	1,200 00
Heath . . . . .	2,700 00	1,400 00
Leverett . . . . .	1,950 00	2,000 00
Leyden . . . . .	2,050 00	1,000 00
New Salem . . . . .	3,000 00	1,500 00
Northfield . . . . .	3,000 00	5,325 00
Shutesbury . . . . .	2,000 00	1,000 00
Sunderland . . . . .	1,700 00	2,550 00
Warwick . . . . .	2,800 00	1,500 00
Wendell . . . . .	2,350 00	2,500 00
Whately . . . . .	1,950 00	3,000 00
<b>Hampden County:</b>		
Blandford . . . . .	3,000 00	3,440 00
Brimfield . . . . .	3,000 00	3,060 00
Chester . . . . .	3,000 00	3,550 00
Granville . . . . .	3,000 00	3,300 00
Hampden . . . . .	1,700 00	1,360 00
Holland . . . . .	1,600 00	450 00
Monson . . . . .	3,000 00	6,300 00
Montgomery . . . . .	1,600 00	800 00
Southwick . . . . .	3,000 00	7,000 00
Tolland . . . . .	2,000 00	2,050 00
Wales . . . . .	1,400 00	1,120 00
<b>Hampshire County:</b>		
Belchertown . . . . .	3,000 00	6,940 00
Chesterfield . . . . .	2,600 00	1,300 00
Cummington . . . . .	2,450 00	2,000 00
Enfield . . . . .	1,850 00	3,000 00
Goshen . . . . .	1,550 00	800 00
Granby . . . . .	2,300 00	2,500 00
Greenwich . . . . .	1,950 00	1,000 00
Huntington . . . . .	2,050 00	3,200 00
Middlefield . . . . .	1,950 00	1,500 00
Pelham . . . . .	2,000 00	1,750 00
Plainfield . . . . .	2,400 00	1,000 00

COUNTIES AND TOWNS.	ALLOTMENTS.	
	State.	Town.
<b>Hampshire County — Concluded.</b>		
Prescott . . . . .	\$1,950 00	\$800 00
Southampton . . . . .	3,000 00	2,500 00
Westhampton . . . . .	2,450 00	800 00
Williamsburg . . . . .	2,100 00	4,200 00
Worthington . . . . .	3,000 00	900 00
<b>Middlesex County:</b>		
Ashby . . . . .	2,850 00	2,850 00
Boxborough . . . . .	1,200 00	1,050 00
Carlisle . . . . .	3,000 00	1,500 00
Dunstable . . . . .	1,750 00	1,400 00
Holliston . . . . .	1,300 00	3,300 00
Hopkinton . . . . .	3,000 00	5,175 00
Sherborn . . . . .	2,500 00	13,000 00
Stow . . . . .	2,250 00	3,375 00
Townsend . . . . .	3,000 00	4,700 00
Tyngsborough . . . . .	1,700 00	2,550 00
Wilmington . . . . .	2,450 00	6,125 00
<b>Norfolk County:</b>		
Bellingham . . . . .	2,050 00	4,100 00
Medway . . . . .	2,000 00	8,000 00
<b>Plymouth County:</b>		
Halifax . . . . .	1,600 00	2,400 00
Lakeville . . . . .	2,850 00	5,000 00
Plympton . . . . .	1,700 00	1,700 00
Rochester . . . . .	3,000 00	5,160 00
<b>Worcester County:</b>		
Ashburnham . . . . .	3,000 00	4,760 00
Berlin . . . . .	1,850 00	2,775 00
Bolton . . . . .	2,750 00	2,200 00
Boylston . . . . .	1,600 00	1,600 00
Brookfield . . . . .	2,250 00	4,000 00
Charlton . . . . .	3,000 00	4,800 00
Dana . . . . .	2,500 00	1,250 00
Douglas . . . . .	3,000 00	3,000 00
Harvard . . . . .	3,000 00	6,360 00
Holden . . . . .	3,000 00	7,500 00
Hubbardston . . . . .	3,000 00	3,500 00
Lunenburg . . . . .	3,000 00	5,550 00
Mendon . . . . .	2,150 00	2,150 00
New Braintree . . . . .	2,450 00	2,586 00
Oakham . . . . .	2,350 00	1,425 00
Paxton . . . . .	1,450 00	1,320 00
Petersham . . . . .	3,000 00	4,650 00
Phillipston . . . . .	2,050 00	1,800 00
Princeton . . . . .	3,000 00	4,000 00
Royalston . . . . .	3,000 00	4,100 00
Rutland . . . . .	3,000 00	3,540 00
Sterling . . . . .	3,000 00	5,000 00
Sturbridge . . . . .	3,000 00	3,600 00
Sutton . . . . .	3,000 00	4,500 00
Templeton . . . . .	3,000 00	6,900 00
Upton . . . . .	3,000 00	4,650 00
Westminster . . . . .	3,000 00	3,440 00

The expenditures during 1921, in various counties, for the repair and improvement of public ways, exclusive of State highways, in certain towns, were:—

COUNTY.	Amount.
Barnstable . . . . .	\$2,274 75
Berkshire . . . . .	33,355 50
Bristol . . . . .	7,200 00
Essex . . . . .	1,500 00
Franklin . . . . .	36,616 46
Hampden . . . . .	22,005 29
Hampshire . . . . .	33,669 11
Middlesex . . . . .	23,132 48
Norfolk . . . . .	4,050 00
Plymouth . . . . .	7,660 87
Worcester . . . . .	61,017 03

Details of the foregoing expenditures follow:—

*Barnstable County.*

Truro . . . . .	\$1,434 75
Wellfleet . . . . .	840 00

*Berkshire County.*

Alford . . . . .	1,000 00
Becket . . . . .	2,900 00
Florida . . . . .	2,050 00
Hancock . . . . .	1,310 86
Hinsdale . . . . .	1,400 67
Lanesborough . . . . .	1,819 81
Monterey . . . . .	2,251 14
New Marlborough . . . . .	2,769 07
Otis . . . . .	2,950 00
Peru . . . . .	2,215 56
Sandisfield . . . . .	3,000 00
Savoy . . . . .	2,759 95
Sheffield . . . . .	1,270 87
Tyringham . . . . .	1,065 37
West Stockbridge . . . . .	1,714 53
Windsor . . . . .	2,877 67

*Bristol County.*

Freetown . . . . .	3,000 00
Raynham . . . . .	1,200 00
Rehoboth . . . . .	3,000 00

*Essex County.*

West Newbury . . . . .	\$1,500 00
------------------------	------------

*Franklin County.*

Ashfield . . . . .	57 20
Bernardston . . . . .	2,500 00
Charlemont . . . . .	2,500 00
Colrain . . . . .	2,998 50
Conway . . . . .	2,478 16
Gill . . . . .	1,800 00
Hawley . . . . .	2,425 00
Heath . . . . .	2,700 00
Leverett . . . . .	1,725 00
Leyden . . . . .	2,050 00
New Salem . . . . .	2,900 00
Northfield . . . . .	2,382 60
Shutesbury . . . . .	1,900 00
Sunderland . . . . .	1,525 00
Warwick . . . . .	2,775 00
Wendell . . . . .	2,275 00
Whately . . . . .	1,625 00

*Hampden County.*

Blandford . . . . .	2,246 45
Brimfield . . . . .	2,700 03
Chester . . . . .	2,309 16
Granville . . . . .	2,501 48
Hampden . . . . .	1,484 99
Holland . . . . .	1,430 82
Monson . . . . .	3,000 00
Montgomery . . . . .	1,599 82
Southwick . . . . .	1,756 01
Tolland . . . . .	1,652 32
Wales . . . . .	1,324 21

*Hampshire County.*

Belchertown . . . . .	1,711 40
Chesterfield . . . . .	2,577 82
Cummington . . . . .	2,450 00
Enfield . . . . .	1,675 27
Goshen . . . . .	1,500 00
Granby . . . . .	2,200 00
Greenwich . . . . .	1,950 00
Huntington . . . . .	1,471 80
Middlefield . . . . .	1,703 38
Pelham . . . . .	2,000 00

Plainfield . . . . .	\$2,400 00
Prescott . . . . .	1,950 00
Southampton . . . . .	2,950 00
Westhampton . . . . .	2,425 00
Williamsburg . . . . .	1,779 44
Worthington . . . . .	2,925 00

*Middlesex County.*

Ashby . . . . .	2,850 00
Boxborough . . . . .	1,216 60
Carlisle . . . . .	2,983 56
Dunstable . . . . .	1,156 00
Holliston . . . . .	965 00
Hopkinton . . . . .	2,847 34
Sherborn . . . . .	2,383 94
Stow . . . . .	2,065 76
Townsend . . . . .	2,557 00
Tyngsborough . . . . .	1,700 00
Wilmington . . . . .	2,407 28

*Norfolk County.*

Bellingham . . . . .	2,050 00
Medway . . . . .	2,000 00

*Plymouth County.*

Halifax . . . . .	1,600 00
Lakeville . . . . .	1,815 00
Plympton . . . . .	1,672 67
Rochester . . . . .	2,573 20

*Worcester County.*

Ashburnham . . . . .	2,665 11
Berlin . . . . .	1,121 99
Bolton . . . . .	1,976 52
Boylston . . . . .	878 77
Brookfield . . . . .	1,567 18
Charlton . . . . .	2,999 36
Dana . . . . .	2,061 69
Douglas . . . . .	3,000 00
Harvard . . . . .	3,000 00
Holden . . . . .	2,435 70
Hubbardston . . . . .	2,504 73
Lunenburg . . . . .	2,218 86
Mendon . . . . .	2,073 29
New Braintree . . . . .	2,182 20
Oakham . . . . .	2,047 74



Paxton . . . . .	\$1,177 53
Petersham . . . . .	2,520 06
Phillipston . . . . .	1,715 18
Princeton . . . . .	2,225 41
Royalston . . . . .	2,484 26
Rutland . . . . .	3,000 00
Sterling . . . . .	2,566 25
Sturbridge . . . . .	2,755 32
Sutton . . . . .	2,099 62
Templeton . . . . .	2,649 50
Upton . . . . .	2,448 84
Westminster . . . . .	2,641 97
<hr/>	
Total . . . . .	\$232,481 54
Engineering charges . . . . .	129,042 41
<hr/>	
Total . . . . .	\$361,523 95

## STATE AID IN KEEPING CERTAIN HIGHWAYS OPEN DURING THE WINTER MONTHS.

Chapter 84 of the General Laws, section 11, provides:—

The department of public works may, by furnishing such equipment as it deems desirable and supervising the use of the same, co-operate with the proper officers of cities and towns in keeping open and reasonably passable for vehicles during the winter months such highways as may be selected by said department, with the approval of the proper officers of the city or town in which any such highway is located, having regard to the importance thereof for commercial uses and the co-operation and aid to be rendered by cities, towns and persons in carrying on this work, and for this purpose may accept financial or other assistance from any person; provided, however, that work carried on under this section shall be supplemental to work undertaken and performed by cities and towns under other provisions of law, and that nothing in this section shall render the commonwealth liable for damages for which it is not liable under other provisions of law or relieve cities and towns from keeping their highways clear from ice and snow as required by other provisions of law.

Up to Dec. 1, 1921, snow fences were erected during the winter months along the Boston-Springfield, Boston-Lawrence, Springfield-Greenfield, Greenfield-Pittsfield, Pittsfield-North Adams, and Pittsfield-Springfield lines of highway, the total length of fences being approximately 12,600 feet. The Department also furnished certain equipment in accordance with the provisions of section 11 aforesaid.

The expenditure during the year ending Nov. 30, 1921, was \$47,333.83.

## THE REGULATION OF ADVERTISING SIGNS AND DEVICES WITHIN THE PUBLIC VIEW.

By the provisions of chapter 545 of the Acts of 1920, approved May 27, 1920, the Division of Highways of the Department of Public Works was directed, within sixty days after the passage of the act, to make rules and regulations for the proper control and restriction of billboard and other advertising devices on public ways or on private property within public view of any highway, public park or reservation, and authorized, from time to time, to amend, repeal or add to said rules and regulations.

Rules and regulations were adopted by the Division, to be in force on and after Dec. 31, 1920, and they were printed in the annual report of the Department of Public Works for the year ending Nov. 30, 1920.

Chapter 545 aforesaid is now consolidated in the General Laws, chapter 93, sections 29 to 33, inclusive, as follows: —

SECTION 29. The division of highways of the department of public works, hereinafter called the division, shall make and may amend or repeal rules and regulations for the proper control and restriction of billboards, signs and other advertising devices, except as provided in section thirty-two, on public ways or on private property within public view of any highway, public park or reservation. Said rules and regulations may require that said billboards, signs or other devices be licensed in accordance therewith and with this section, may prescribe license fees, to be fixed with regard to the cost of administering this section, and need not be uniform throughout the commonwealth. Before establishing or amending rules or regulations under this section, the division shall hold duly advertised public hearings in Boston and elsewhere within the commonwealth as it deems necessary or expedient. Subject to the approval of the division, towns may further regulate and restrict said billboards or other devices within their respective limits by ordinance or by-law not inconsistent with sections twenty-nine to thirty-three, inclusive, or with said rules and regulations.

SECTION 30. No person, firm, association or corporation shall post, erect, display or maintain on any public way or on private property within public view from any highway, public park or reservation any billboard or other advertising device, whether erected before August twenty-fifth, nineteen hundred and twenty, or not, which advertises or

calls attention to any business, article, substance or any other thing, unless such billboard or device conforms to the rules and regulations and ordinances or by-laws established under the preceding section; provided, that this section shall not apply to signs or other devices existing on said date and erected and maintained in conformity with then existing law and which advertise or indicate either the person occupying the premises in question or the business transacted thereon, or advertise the property itself or any part thereof as for sale or to let.

SECTION 31. The supreme judicial and superior courts shall have jurisdiction in equity upon petition of the attorney general, of any town or any officer thereof, or of any interested party, to restrain the erection or maintenance of any billboard, sign or other device erected or maintained in violation of any rule, regulation, ordinance or by-law established or adopted under section twenty-nine, and to order the removal or abatement of such billboard, sign or device as a nuisance.

SECTION 32. Sections twenty-nine to thirty-one, inclusive, and thirty-three shall not apply to signs or other devices on or in the rolling stock, stations, subways or structures of or used by common carriers.

SECTION 33. Whoever violates any rule, regulation, ordinance or by-law established or adopted under section twenty-nine shall be punished by a fine of not more than one hundred dollars, and whoever after conviction of such violation unlawfully maintains such a billboard, sign or other device for twenty days thereafter shall be punished by a fine of not more than five hundred dollars.

Work was inaugurated in the spring of 1921, with one inspector and one assistant inspector, who were charged with the duty of examining locations described in applications made to the Division for licenses or permits under the provisions of the General Laws aforesaid. On June 29, 1921, the Division held a public hearing for the purpose of obtaining the views of various parties and formulating a revision of the rules and regulations in effect on and after Dec. 31, 1920.

Revised rules and regulations were adopted June 29, 1921, to be in force on and after July 1, 1921, as follows:—

#### SECTION 1. DEFINITIONS.

Terms used in the following rules and regulations shall be construed as follows:—

“Division” shall mean Division of Highways, Department of Public Works.

“Licenses” shall mean the right to carry on the business of outdoor advertising by means of billboards, signs, and other advertising devices.

“Permit” shall mean the right to locate and maintain a particular sign.

“Person” shall mean any individual, firm, association, partnership, or corporation, who erects or causes to be erected outdoor advertising signs, or is engaged in carrying on the business of outdoor advertising.

“Sign” shall mean any form of outdoor advertising for which a permit may be petitioned, or for which a permit may be granted under the provisions of these regulations.

“Outdoor advertising” shall mean advertising, the control of which, under the provisions of section 29 of chapter 93 of the General Laws, is vested in the Division of Highways, Department of Public Works.

## SECTION 2. LICENSES.

A. No person shall engage in the business of advertising in this Commonwealth by means of outdoor advertising signs without first having obtained a license from the Division of Highways, Department of Public Works.

B. Applications for licenses may be made to the Division upon blanks prepared under its authority.

C. Applications shall contain such information as the Division may require, and must be accompanied by the proper fee.

D. The fee shall be \$50, and the license shall be in force for one year unless earlier suspended or revoked.

E. Applications for renewal of licenses may be made not later than thirty days prior to the date of expiration, and must be accompanied by the annual fee of \$50.

F. The Division reserves the right to suspend or revoke for cause any license issued by it under the provisions of this section.

## SECTION 3. PERMITS TO PERSONS ENGAGED IN CARRYING ON THE BUSINESS OF OUTDOOR ADVERTISING.

A. No person, firm, association, partnership or corporation engaged in carrying on the business of outdoor advertising shall post, erect, display or maintain within public view from any highway, public park or reservation any billboard, sign or other advertising device, except as hereinafter provided.

B. No sign shall be located until an application for a permit has been filed with the Division and the permit granted.

C. Applications shall be on forms prepared under the direction of, and furnished by, the Division, and shall contain such information as the Division may require.

D. Upon receipt of an application for the location of a sign in any city or town, notice shall be forwarded to the officials in charge of licenses in the city or town where said sign is to be located, setting forth that such application has been received, and that unless disapproved on the part of said officials within twenty days of date of application, action will forthwith be taken upon the same by the Division. If objection to the location of such sign as set forth in said application is registered by officials

of the city or town, a hearing shall be given by the Division of Highways or its representative before action is taken upon said application by the Division.

E. Each sign shall carry the serial number of the permit authorizing its location, in figures of a size approved by the Division.

F. Each application for the annual permit shall be accompanied by a fee of \$1, to be known as the examination fee; and upon issuance of a permit an additional fee of \$1, to be designated as an inspection fee, shall be paid by the licensee.

G. Permits shall be valid and in force, unless they are revoked by the Division, upon payment of the annual fees, which shall be due on the first day of July of each year. Failure to pay such fees within thirty days of the first day of July will be deemed sufficient reason for forthwith cancelling such permits.

H. The Division reserves the right to annul and revoke for cause any permit issued by it under the provisions of this section.

#### SECTION 4. PERMITS TO PERSONS NOT ENGAGED IN CARRYING ON THE BUSINESS OF OUTDOOR ADVERTISING.

A. No person, not engaged in carrying on the business of outdoor advertising, shall post, erect, display or maintain within public view from any highway, public park or reservation any billboard, sign or advertising device, except as hereinafter provided.

B. No sign shall be located until an application for a permit has been filed with the Division and the permit granted.

C. Application for a permit shall be on forms prepared under the direction of and furnished by the Division, and shall contain such information as the Division may require.

D. Permits granted under this section will allow the posting, erecting, displaying or maintaining of advertising devices for one year, or for such period less than one year as the Division in its discretion may authorize. A minimum fee of \$1 will be charged for permits issued under this section, with an additional charge to be determined by the length of time that the advertising is to be displayed and the number of signs to be used.

E. All signs displayed under the provisions of this section shall be removed by the persons to whom the permit is issued not later than two weeks after the expiration of the permit.

F. The Division reserves the right to cancel or revoke for cause any permit issued by it under the provisions of this section.

#### SECTION 5. LOCATIONS.

A. No outdoor advertising shall be permitted within the bounds of any highway.

B. No permits shall be issued for outdoor advertising on any location within 300 feet of any park, parkway, playground, or reservation, except

under the following conditions: Permits may be issued for the maintenance of billboards now located, for such length of time as the Division may specifically determine; permits may be issued for the location of electrical display signs on buildings, under such restrictions as the Division may require.

C. No outdoor advertising shall be permitted upon any rock or tree, nor upon any fence or pole bordering on any public highway.

D. The location of all signs shall be clearly stated in permits as issued.

#### SECTION 6. CHARACTER AND MAINTENANCE.

A. Signs shall be of such size, shape and material as the Division shall approve, and shall be so erected and maintained as to conform to the provisions of the laws of the Commonwealth relating to fire hazard.

B. It shall be the duty of the licensee maintaining a sign under a permit from the Division to keep it and the ground about the same, free from all rubbish, or any material which the Division may consider disadvantageous to the community.

C. The Division reserves the right to pass on all matter displayed on any sign maintained under a permit from the Division, and may require the licensee to remove any objectionable matter.

D. If the licensee fails to meet the requirements of this section, such failure shall be deemed sufficient cause for the revocation of the permit under which said sign was erected and maintained.

#### SECTION 7. RESTRICTIONS.

No permits shall be granted for the location or maintenance of signs near certain highways in territory which, in the opinion of the Division, is of unusual scenic beauty. Such places will be designated by the Division from time to time.

#### SECTION 8. REMOVALS.

All signs now located within the Commonwealth, and in any way affected by these rules and regulations, must be removed on or before July 1, 1921, unless permits for the location or maintenance thereof shall have previously been granted; provided, however, that signs for the maintenance of which applications shall have been made but not acted upon by the Division on that date may be permitted to remain until such time as action thereon is taken by the Division, and in case of the Division's refusal to issue a permit, for a further period of ninety days from the date on which notice of such refusal has been mailed to the applicant.

#### SECTION 9.

These rules and regulations are in substitution of all previous rules and regulations adopted, and shall take effect July 1, 1921.

During the year individuals and firms to the number of 47 have made applications for licenses to carry on the business of outdoor advertising within the State. To Dec. 1, 1921, applications to the number of 9,565 were filed for the maintenance of outdoor advertising signs. Examinations of the locations of approximately 5,500 of these applications have been made, the majority being west of a line drawn across the State from Fitchburg through Worcester to the Rhode Island line. Permits to the number of 846 have been granted for the maintenance of advertising signs; also 10 permits for the placing of small cardboard signs outside highway locations, in connection with agricultural fairs, and which were to be removed upon the expiration of the permits.

Applications for permits to the number of 54 have been disapproved, 51 of which were to be maintained at or near the certain roads which the Division designated scenic highways. The highways so designated include the following:—

Mohawk Trail route, beginning at a point on the 1919 section of the State highway in Greenfield, at its intersection with the old road to Shelburne, and shown as station 31 on a map on file in the office of the Division, and extending in a westerly direction along the State highway in Greenfield, Shelburne, Buckland, Charlemont, Florida, Savoy and North Adams to the Five Corners, so called, in North Adams.

North Shore route, beginning at the junction of Stone and Cabot streets, in Beverly, and following along Stone Street to Lothrop, to Hale, to West Street; thence through Beverly Farms to the Manchester line; bridge, Washington and Summer streets, Manchester, to the Gloucester line; Western Avenue, in Gloucester, to the Annisquam River bridge, omitting the city of Gloucester. Beginning again at a point opposite the Lufkin School on Eastern Avenue, in Gloucester, and extending to the Rockport line; thence through Main Street, Railroad Avenue and Granite Street, in Rockport, to the Gloucester line; thence through Langsford and Washington streets to the junction of Grove and Washington streets, in Gloucester.

Northampton-Pittsfield route, beginning at the junction of the Ashfield-Goshen road, near the Hotel Williams in Williams-



burg, and extending through Williamsburg, Goshen, Cummington, Windsor and Dalton to the junction of Main and Maple streets, in Dalton.

The total amount received during the year in payment for licenses and permits was \$12,597.21.

The expenditure during the year ending Nov. 30, 1921, was \$6,175.72.

RECOMMENDATIONS OF THE DEPARTMENT FOR LEGISLATION RELATING TO THE DIVISION OF HIGHWAYS, INCLUDING THE REGISTRY OF MOTOR VEHICLES.

*State Oversight of Bridges.*

1. Such study of the bridge situation in the Commonwealth as has been possible in conjunction with the necessary work of the Department leads to a recommendation for legislation to provide for more definite control of the construction of new public highway bridges, and the rebuilding of existing bridges upon highways for which the State is responsible in whole or in part.

*Restriction of Loads on Public Highways and Bridges.*

2. Many States have given authority to State highway departments to restrict or entirely prohibit operation of heavy vehicles on improved highways under such conditions as said departments may prescribe. The Division of Highways of the Department of Public Works believes that such action is not wise in Massachusetts, but it is considered important that a better oversight should be established over heavy loads that desire to use the highways, both from the standpoint of protecting the highway and controlling the operation of the vehicle.

*Authority to open up Dangerous Corners.*

3. While the recommendation of the Department made a year ago was not approved by the Legislature, the situation is believed to be of such importance as to justify a similar recommendation at the present time. In the belief that a change may be made in the existing law that will afford the necessary relief, it is recommended that section 14 of chapter 81 of the General Laws be amended.

## REGISTRY OF MOTOR VEHICLES.

*Motor Vehicle Fees.*

4, 5 and 6. A continued study of the problem of meeting the increasing demands for improved highways still further strengthens the belief of the commissioners that increased motor vehicle fees must be secured. The burdens being placed upon highways, bridges and all activities associated with the demand for safer and better highway travel are so directly related to the rapidly developing use of motor vehicles that the Department believes that it is only just that the direct cause of the larger part of this demand should bear the added burden.

The Department has given full consideration to the contention frequently made that a larger portion of this expense should be carried in direct taxation, but legislation enacted along the lines proposed by the Department would still leave as a charge upon direct taxation a cost of highways in the Commonwealth nearly four times that which motor vehicle owners would pay. When it is further taken into account that this direct taxation burden also shows an increased cost met in this way of approximately four times what it was twenty years ago, it will be seen that the general public is already bearing a large burden incident to the newly developed system of transportation.

Consideration has been given by the Department to new methods of taxation that shall meet the demand for larger highway expenditures, but the present method of a direct and definite tax, fixing the charge which the motorists must pay for a year's license fee, with a force already organized for its collection and having the almost universal approval of the men directing the automobile industry in the State, appeals to the Department as the proper method to continue to follow in handling this situation.

To better afford an opportunity for discussion of the issues involved in registration fees for passenger vehicles as distinct from registration fees for motor trucks, legislation is recommended for each type of vehicle. The Department is convinced that while the most serious problem involved in the operation of the passenger car is related to the service which

the highway furnishes to that particular vehicle, in connection with the commercial vehicle the problem is more directly related to the damage occasioned by the heavy vehicle and the necessity for heavy construction to care for its needs.

These recommendations are based upon an exhaustive study of fees established in other States, with such added investigation from an engineering standpoint as to justify the recommendations made. These rates would establish the fees for motor vehicle registration in Massachusetts on a basis less than several other New England States, and but a trifle more than the average in all New England States. When it is recognized that motorists in Massachusetts have available for their use a larger proportionate mileage of improved highway than any other State in the Union, it is believed that the proposed fees are fairly established.

*Rulings by Registrar of Motor Vehicles.*

7. To more definitely define the procedure in enforcing certain rulings that the registrar of motor vehicles is authorized by law to make, a change is recommended in chapter 90, section 28 of the General Laws relative to appeals from the decision of the registrar of motor vehicles.

*Additional Equipment of Motor Vehicles.*

8. The developed use of the enclosed car and the equipment of practically all cars with curtains and enclosed tops for the winter season emphasize the importance of having motor vehicles equipped with some device that shall show from the rear the purpose of the operator more definitely than it is now possible by any hand signal. It is recommended that such equipment shall be required.

RECOMMENDATIONS OF THE DEPARTMENT FOR LEGIS-  
LATION RELATING TO THE DIVISION OF WATERWAYS  
AND PUBLIC LANDS.

*Harbor Lines in Boston Harbor.*

9. In order to conform to certain requirements fixed by the Federal government, a slight change is necessary in the harbor line established in Boston Harbor in East Boston.

*Harbor Lines in Weymouth Fore River.*

10. The industrial development under way in Weymouth Fore River requires a further extension of an established harbor line above Quincy Point bridge.

*Improvements in Westfield River.*

11. The Division of Waterways and Public Lands of the Department of Public Works already has a limited control over the placing of structures and carrying on of improvements in a portion of the Connecticut River. Emptying into this section of the Connecticut River is the Westfield, or Agawam, River, and in connection with the area extending from the mouth of the river a considerable distance up, there is more or less development requiring such control as will properly protect private parties who are involved and the public interest concerned. To secure such protection, it is recommended that legislation be passed to provide for the care and supervision of that part of Westfield River.

*Public Terminal on the Cape Cod Canal.*

12. Attention has been given by the Division of Waterways and Public Lands to the question of establishing on the Cape Cod Canal a public terminal. Further consideration may be given to this project, and action may be taken, if the same is deemed wise, through a proper co-operation between the local interests and the Commonwealth.

*Investigation of Conditions affecting Pilots.*

13. Various occurrences and conditions that have arisen in some of the harbors outside of Boston indicate that the pilotage service at those ports is in a somewhat unorganized condition. The customs, regulations and statutes affecting that service are based largely on conditions of many years ago, and are designed to meet small ships and natural channels. At the present time the Commonwealth is spending considerable sums for dredging and improving harbors, to encourage commerce. The proper use of these improvements is hindered to a considerable extent by the difficulties the modern steamship of large size experiences under our present pilotage laws. It is recommended that the Division of Waterways and Public Lands be directed to investigate this subject and report its findings, with such recommendations as may seem advisable.

## IN GENERAL.

14. To properly protect such employees of the Department of Public Works not now cared for under the workmen's compensation act, it is recommended that legislation be passed to provide for the payment of compensation to certain employees of the Department of Public Works who receive injuries.

15. Under the present method of construction employed in many different forms of public work, certain materials are used as directly in the work as if they were allowed to stay there upon the completion of the contract. Notwithstanding this situation, it is impossible under existing law to properly protect men who supply to contractors for the Commonwealth this type of material. To secure such dealers in their transactions with contractors upon the public works of the State, the Department recommends an amendment to existing law that will provide "for protection of claims for labor and materials furnished for public works."

## APPENDIX.

## FEDERAL HIGHWAY ACT.

AN ACT TO AMEND THE ACT ENTITLED "AN ACT TO PROVIDE THAT THE UNITED STATES SHALL AID THE STATES IN THE CONSTRUCTION OF RURAL POST ROADS, AND FOR OTHER PURPOSES," APPROVED JULY 11, 1916, AS AMENDED AND SUPPLEMENTED, AND FOR OTHER PURPOSES.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That this Act may be cited as the Federal Highway Act.

SEC. 2. That, when used in this Act, unless the context indicates otherwise —

The term "Federal Aid Act" means the Act entitled "An Act to provide that the United States shall aid the States in the construction of rural post roads, and for other purposes," approved July 11, 1916, as amended by sections 5 and 6 of an Act entitled "An Act making appropriations for the service of the Post Office Department for the fiscal year ending June 30, 1920, and for other purposes," approved February 28, 1919, and all other Acts amendatory thereof or supplementary thereto.

The term "highway" includes rights of way, bridges, drainage structures, signs, guard rails, and protective structures in connection with highways, but shall not include any highway or street in a municipality having a population of two thousand five hundred or more as shown by the last available census, except that portion of any such highway or street along which within a distance of one mile the houses average more than two hundred feet apart.

The term "State highway department" includes any State department, commission, board, or official having adequate powers and suitably equipped and organized to discharge to the satisfaction of the Secretary of Agriculture the duties herein required.

The term "maintenance" means the constant making of needed repairs to preserve a smooth surfaced highway.

The term "construction" means the supervising, inspecting, actual building, and all expenses incidental to the construction of a highway, except locating, surveying, mapping, and costs of rights of way.

The term "reconstruction" means a widening or a rebuilding of the highway or any portion thereof to make it a continuous road, and of sufficient width and strength to care adequately for traffic needs.

The term "forest roads" means roads wholly or partly within or adjacent to and serving the national forests.

The term "State funds" includes for the purposes of this Act funds raised under the authority of the State, or any political or other subdivision thereof, and made available for expenditure under the direct control of the State highway department.

SEC. 3. All powers and duties of the Council of National Defense under the Act entitled "An Act making appropriations for the support of the Army for the fiscal year ending June 30, 1917, and for other purposes," approved August 29, 1916, in relation to highway or highway transport, are hereby transferred to the Secretary of Agriculture, and the Council of National Defense is directed to turn over to the Secretary of Agriculture the equipment, material, supplies, papers, maps, and documents utilized in the exercise of such powers. The powers and duties of agencies dealing with highways in the national parks or in military or naval reservations under the control of the United States Army or Navy, or with highways used principally for military or naval purposes, shall not be taken over by the Secretary of Agriculture, but such highways shall remain under the control and jurisdiction of such agencies.

The Secretary of Agriculture is authorized to cooperate with the State highway departments, and with the Department of the Interior in the construction of public highways within Indian reservations, and to pay the amount assumed therefor from the funds allotted or apportioned under this Act to the State wherein the reservation is located.

SEC. 4. That the Secretary of Agriculture shall establish an accounting division which shall devise and install a proper method of keeping the accounts.

SEC. 5. That the Secretary of War be, and he is hereby, authorized and directed to transfer to the Secretary of Agriculture, upon his request, all war material, equipment, and supplies now or hereafter declared surplus from stock now on hand and not needed for the purposes of the War Department but suitable for use in the improvement of highways, and that the same shall be distributed among the highway departments of the several States to be used in the construction, reconstruction, and maintenance of highways, such distribution to be upon the same basis as that hereinafter provided for in this Act in the distribution of Federal-aid fund: *Provided*, That the Secretary of Agriculture, in his discretion, may reserve from such distribution not to exceed 10 per centum of such material, equipment, and supplies for use in the construction, reconstruction, and maintenance of national forest roads or other roads constructed, reconstructed, or maintained under his direct supervision.

SEC. 6. That in approving projects to receive Federal aid under the provisions of this Act the Secretary of Agriculture shall give preference to such projects as will expedite the completion of an adequate and connected system of highways, interstate in character.

Before any projects are approved in any State, such State, through its State highway department, shall select or designate a system of highways not to exceed 7 per centum of the total highway mileage of such



State as shown by the records of the State highway department at the time of the passage of this Act.

Upon this system all Federal-aid apportionments shall be expended.

Highways which may receive Federal aid shall be divided into two classes, one of which shall be known as primary or interstate highways, and shall not exceed three-sevenths of the total mileage which may receive Federal aid, and the other which shall connect or correlate therewith and be known as secondary or intercounty highways, and shall consist of the remainder of the mileage which may receive Federal aid.

The Secretary of Agriculture shall have authority to approve in whole or in part the systems as designated or to require modifications or revisions thereof: *Provided*, That the States shall submit to the Secretary of Agriculture for his approval any proposed revisions of the designated systems of highways above provided for.

Not more than 60 per centum of all Federal aid allotted to any State shall be expended upon the primary or interstate highways until provision has been made for the improvement of the entire system of such highways: *Provided*, That with the approval of any State highway department the Secretary of Agriculture may approve the expenditure of more than 60 per centum of the Federal aid apportioned to such State upon the primary or interstate highways in such State.

The Secretary of Agriculture may approve projects submitted by the State highway departments prior to the selection, designation, and approval of the system of Federal-aid highways herein provided for if he may reasonably anticipate that such projects will become a part of such system.

Whenever provision has been made by any State for the completion and maintenance of a system of primary or interstate and secondary or intercounty highways equal to 7 per centum of the total mileage of such State, as required by this Act, said State, through its State highway department, by and with the approval of the Secretary of Agriculture, is hereby authorized to add to the mileage of primary or interstate and secondary or intercounty systems as funds become available for the construction and maintenance of such additional mileage.

SEC. 7. That before any project shall be approved by the Secretary of Agriculture for any State such State shall make provisions for State funds required each year of such States by this Act for construction, reconstruction, and maintenance of all Federal-aid highways within the State, which funds shall be under the direct control of the State highway department.

SEC. 8. That only such durable types of surface and kinds of materials shall be adopted for the construction and reconstruction of any highway which is a part of the primary or interstate and secondary or intercounty systems as will adequately meet the existing and probable future traffic needs and conditions thereon. The Secretary of Agriculture shall approve the types and width of construction and reconstruction and the character of improvement, repair, and maintenance in each

case, consideration being given to the type and character which shall be best suited for each locality and to the probable character and extent of the future traffic.

SEC. 9. That all highways constructed or reconstructed under the provisions of this Act shall be free from tolls of all kinds.

That all highways in the primary or interstate system constructed after the passage of this Act shall have a right of way of ample width and a wearing surface of an adequate width which shall not be less than eighteen feet, unless, in the opinion of the Secretary of Agriculture, it is rendered impracticable by physical conditions, excessive costs, probable traffic requirements, or legal obstacles.

SEC. 10. That when any State shall have met the requirements of this Act, the Secretary of the Treasury, upon receipt of certification from the governor of such State to such effect, approved by the Secretary of Agriculture, shall immediately make available to such State, for the purpose set forth in this Act, the sum apportioned to such State as herein provided.

SEC. 11. That any State having complied with the provisions of this Act, and desiring to avail itself of the benefits thereof, shall by its State highway department submit to the Secretary of Agriculture project statements setting forth proposed construction or reconstruction of any primary or interstate, or secondary or intercounty highway therein. If the Secretary of Agriculture approve the project, the State highway department shall furnish to him such surveys, plans, specifications, and estimates therefor as he may require; items included for engineering, inspection, and unforeseen contingencies shall not exceed 10 per centum of the total estimated cost of its construction.

That when the Secretary of Agriculture approves such surveys, plans, specifications, and estimates, he shall notify the State highway department and immediately certify the fact to the Secretary of the Treasury. The Secretary of the Treasury shall thereupon set aside the share of the United States payable under this Act on account of such projects, which shall not exceed 50 per centum of the total estimated cost thereof, except that in the case of any State containing unappropriated public lands exceeding 5 per centum of the total area of all lands in the State, the share of the United States payable under this Act on account of such projects shall not exceed 50 per centum of the total estimated cost thereof plus a percentage of such estimated cost equal to one-half of the percentage which the area of the unappropriated public lands in such State bears to the total area of such State: *Provided*, That the limitation of payments not to exceed \$20,000 per mile, under existing law, which the Secretary of Agriculture may make be, and the same is hereby, increased in proportion to the increased percentage of Federal aid authorized by this section: *Provided further*, That these provisions relative to the public-land States shall apply to all unobligated or unmatched funds appropriated by the Federal Aid Act and payment for approved projects upon

which actual building construction work had not begun on the 30th day of June, 1921.

SEC. 12. That the construction and reconstruction of the highways or parts of highways under the provisions of this Act, and all contracts, plans, specifications, and estimates relating thereto, shall be undertaken by the State highway departments subject to the approval of the Secretary of Agriculture. The construction and reconstruction work and labor in each State shall be done in accordance with its laws and under the direct supervision of the State highway department, subject to the inspection and approval of the Secretary of Agriculture and in accordance with the rules and regulations pursuant to this Act.

SEC. 13. That when the Secretary of Agriculture shall find that any project approved by him has been constructed or reconstructed in compliance with said plans and specifications, he shall cause to be paid to the proper authorities of said State the amount set aside for said project.

That the Secretary of Agriculture may, in his discretion, from time to time, make payments on such construction or reconstruction as the work progresses, but these payments, including previous payments, if any, shall not be more than the United States pro rata part of the value of the labor and materials which have been actually put into such construction or reconstruction in conformity to said plans and specifications. The Secretary of Agriculture and the State highway department of each State may jointly determine at what time and in what amounts payments as work progresses shall be made under this Act.

Such payments shall be made by the Secretary of the Treasury, on warrants drawn by the Secretary of Agriculture, to such official or officials or depository as may be designated by the State highway department and authorized under the laws of the State to receive public funds of the State.

SEC. 14. That should any State fail to maintain any highway within its boundaries after construction or reconstruction under the provisions of this Act, the Secretary of Agriculture shall then serve notice upon the State highway department of that fact, and if within ninety days after receipt of such notice said highway has not been placed in proper condition of maintenance, the Secretary of Agriculture shall proceed immediately to have such highway placed in a proper condition of maintenance and charge the cost thereof against the Federal funds allotted to such State, and shall refuse to approve any other project in such State, except as hereinafter provided.

Upon the reimbursement by the State of the amount expended by the Federal Government for such maintenance, said amount shall be paid into the Federal highway fund for reapportionment among all the States for the construction of roads under this Act, and the Secretary of Agriculture shall then approve further projects submitted by the State as in this Act provided.

Whenever it shall become necessary for the Secretary of Agriculture

under the provisions of this Act to place any highway in a proper condition of maintenance the Secretary of Agriculture shall contract with some responsible party or parties for doing such work: *Provided, however,* That in case he is not able to secure a satisfactory contract he may purchase, lease, hire, or otherwise obtain all necessary supplies, equipment, and labor, and may operate and maintain such motor and other equipment and facilities as in his judgment are necessary for the proper and efficient performance of his functions.

SEC. 15. That within two years after this Act takes effect the Secretary of Agriculture shall prepare, publish, and distribute a map showing the highways and forest roads that have been selected and approved as a part of the primary or interstate, and the secondary or intercounty systems, and at least annually thereafter shall publish supplementary maps showing his program and the progress made in selection, construction, and reconstruction.

SEC. 16. That for the purpose of this Act the consent of the United States is hereby given to any railroad or canal company to convey to the highway department of any State any part of its right of way or other property in that State acquired by grant from the United States.

SEC. 17. That if the Secretary of Agriculture determines that any part of the public lands or reservations of the United States is reasonably necessary for the right of way of any highway or forest road or as a source of materials for the construction or maintenance of any such highway or forest road adjacent to such lands or reservations, the Secretary of Agriculture shall file with the Secretary of the department supervising the administration of such land or reservation a map showing the portion of such lands or reservations which it is desired to appropriate.

If within a period of four months after such filing the said Secretary shall not have certified to the Secretary of Agriculture that the proposed appropriation of such land or material is contrary to the public interest or inconsistent with the purposes for which such land or materials have been reserved, or shall have agreed to the appropriation and transfer under conditions which he deems necessary for the adequate protection and utilization of the reserve, then such land and materials may be appropriated and transferred to the State highway department for such purposes and subject to the conditions so specified.

If at any time the need for any such lands or materials for such purposes shall no longer exist, notice of the fact shall be given by the State highway department to the Secretary of Agriculture, and such lands or materials shall immediately revert to the control of the Secretary of the department from which they had been appropriated.

SEC. 18. That the Secretary of Agriculture shall prescribe and promulgate all needful rules and regulations for the carrying out of the provisions of this Act, including such recommendations to the Congress and the State highway departments as he may deem necessary for preserving and protecting the highways and insuring the safety of traffic thereon.

SEC. 19. That on or before the first Monday in December of each year the Secretary of Agriculture shall make a report to Congress, which shall include a detailed statement of the work done, the status of each project undertaken, the allocation of appropriations, an itemized statement of the expenditures and receipts during the preceding fiscal year under this Act, an itemized statement of the traveling and other expenses, including a list of employees, their duties, salaries, and traveling expenses, if any, and his recommendations, if any, for new legislation amending or supplementing this Act. The Secretary of Agriculture shall also make such special reports as Congress may request.

SEC. 20. That for the purpose of carrying out the provisions of this Act there is hereby appropriated, out of the moneys in the Treasury not otherwise appropriated, \$75,000,000 for the fiscal year ending June 30, 1922, \$25,000,000 of which shall become immediately available, and \$50,000,000 of which shall become available January 1, 1922.

SEC. 21. That so much, not to exceed  $2\frac{1}{2}$  per centum, of all moneys hereby or hereafter appropriated for expenditure under the provisions of this Act, as the Secretary of Agriculture may deem necessary for administering the provisions of this Act and for carrying on necessary highway research and investigational studies independently or in cooperation with the State highway departments and other research agencies, and for publishing the results thereof, shall be deducted for such purposes, available until expended.

Within sixty days after the close of each fiscal year the Secretary of Agriculture shall determine what part, if any, of the sums theretofore deducted for such purposes will not be needed and apportion such part, if any, for the fiscal year then current in the same manner and on the same basis as are other amounts authorized by this Act apportioned among all the States, and shall certify such apportionment to the Secretary of the Treasury and to the State highway departments.

The Secretary of Agriculture, after making the deduction authorized by this section, shall apportion the remainder of the appropriation made for expenditure under the provision of the Act for the fiscal year among the several States in the following manner: One-third in the ratio which the area of each State bears to the total area of all the States; one-third in the ratio which the population of each State bears to the total population of all the States, as shown by the latest available Federal census; one-third in the ratio which the mileage of rural delivery routes and star routes in each State bears to the total mileage of rural delivery and star routes in all the States at the close of the next preceding fiscal year, as shown by certificate of the Postmaster General, which he is directed to make and furnish annually to the Secretary of Agriculture: *Provided*, That no State shall receive less than one-half of 1 per centum of each year's allotment. All moneys herein or hereafter appropriated for expenditure under the provisions of this Act shall be available until the close of the second succeeding fiscal year for which apportionment was

made: *Provided further*, That any sums apportioned to any State under the provisions of the Act entitled "An Act to provide that the United States shall aid the States in the construction of rural post roads, and for other purposes," approved July 11, 1916, and all Acts amendatory thereof and supplemental thereto, shall be available for expenditure in that State for the purpose set forth in such Acts until two years after the close of the respective fiscal years for which any such sums become available, and any amount so apportioned remaining unexpended at the end of the period during which it is available for expenditure under the terms of such Acts shall be reapportioned according to the provisions of the Act entitled "An Act to provide that the United States shall aid the States in the construction of rural post roads, and for other purposes," approved July 11, 1916: *And provided further*, That any amount apportioned under the provisions of this Act unexpended at the end of the period during which it is available for expenditure under the terms of this section shall be reapportioned within sixty days thereafter to all the States in the same manner and on the same basis, and certified to the Secretary of the Treasury and the State highway departments in the same way as if it were being apportioned under this Act for the first time.

SEC. 22. That within sixty days after the approval of this Act the Secretary of Agriculture shall certify to the Secretary of the Treasury and to each of the State highway departments the sum he has estimated to be deducted for administering the provisions of this Act and the sums which he has apportioned to each State for the fiscal year ending June 30, 1922, and on or before January 20 next preceding the commencement of each succeeding fiscal year, and shall make like certificates for each fiscal year.

SEC. 23. That out of the moneys in the Treasury not otherwise appropriated, there is hereby appropriated for the survey, construction, reconstruction, and maintenance of forest roads and trails, the sum of \$5,000,000 for the fiscal year ending June 30, 1922, available immediately and until expended, and \$10,000,000 for the fiscal year ending June 30, 1923, available until expended.

(a) Fifty per centum, but not to exceed \$3,000,000 for any one fiscal year, of the appropriation made or that may hereafter be made for expenditure under the provisions of this section shall be expended under the direct supervision of the Secretary of Agriculture in the survey, construction, reconstruction, and maintenance of roads and trails of primary importance for the protection, administration, and utilization of the national forests, or when necessary, for the use and development of the resources upon which communities within or adjacent to the national forests are dependent, and shall be apportioned among the several States, Alaska, and Porto Rico by the Secretary of Agriculture, according to the relative needs of the various national forests, taking into consideration the existing transportation facilities, value of timber, or other resources served, relative fire danger, and comparative difficulties of road and trail construction.

The balance of such appropriations shall be expended by the Secretary of Agriculture in the survey, construction, reconstruction, and maintenance of forest roads of primary importance to the State, counties, or communities within, adjoining, or adjacent to the national forests, and shall be prorated and apportioned by the Secretary of Agriculture for expenditures in the several States, Alaska, and Porto Rico, according to the area and value of the land owned by the Government within the national forests therein as determined by the Secretary of Agriculture from such information, investigation, sources, and departments as the Secretary of Agriculture may deem most accurate.

(b) Cooperation of Territories, States, and civil subdivisions thereof may be accepted but shall not be required by the Secretary of Agriculture.

(c) The Secretary of Agriculture may enter into contracts with any Territory, State, or civil subdivision thereof for the construction, reconstruction, or maintenance of any forest road or trail or part thereof.

(d) Construction work on forest roads or trails estimated to cost \$5,000 or more per mile, exclusive of bridges, shall be advertised and let to contract.

If such estimated cost is less than \$5,000 per mile, or if, after proper advertising, no acceptable bid is received, or the bids are deemed excessive, the work may be done by the Secretary of Agriculture on his own account; and for such purpose the Secretary of Agriculture may purchase, lease, hire, rent, or otherwise obtain all necessary supplies, materials, tools, equipment, and facilities required to perform the work.

The appropriation made in this section or that may hereafter be made for expenditure under the provisions of this section may be expended for the purpose herein authorized and for the payment of wages, salaries, and other expenses for help employed in connection with such work.

SEC. 24. That in any State where the existing constitution or laws will not permit the State to provide revenues for the construction, reconstruction, or maintenance of highways, the Secretary of Agriculture shall continue to approve projects for said State until three years after the passage of this Act, if he shall find that said State has complied with the provisions of this Act in so far as its existing constitution and laws will permit.

SEC. 25. That if any provision of this Act, or the application thereof to any person or circumstances, shall be held invalid, the validity of the remainder of the Act and of the application of such provision to other persons or circumstances shall not be affected thereby.

SEC. 26. That all Acts or parts of Acts in any way inconsistent with the provisions of this Act are hereby repealed, and this Act shall take effect on its passage.

Approved, November 9, 1921.

## HIGHWAYS LAID OUT OR CONTRACTED FOR AND CONSTRUCTION EXPENDITURES TO DEC. 1, 1921.

TOWN OR CITY.	Year. <sup>1</sup>	ROADS LAID OUT.				Length constructed (Miles).	Length constructed (Miles).	Construction Expenditures to Dec. 1, 1921.
		From —	Direction.					
Abington	1900-1-3	Brockton line	Northeasterly		1.729	1.729		
Abington	1905-7	Weymouth line (Holbrook Road)	Easterly		1.639	1.639		\$57,403 75
Abington	1911-13	Weymouth line	Southerly		2.035	2.035		
Abington	1915	Whitman line (South Bedford Street)	Northerly		.537	.537		
Acton	1899-1900-1-2-19	Concord line	Northwesterly		3.899	3.899		
Acton	1901-7-12-13	Boxborough line to Concord line	Easterly		3.967	3.967		83,416 14
Acushnet	1897	Point about ½ mile east of New Bedford line						
Acushnet	1903-1	Rochester line to Rochester line	Northeasterly		.599	.599		
Acushnet	1917	Fairhaven line	Northwesterly		2.737	2.737		44,497 47
Adams	1908	Cheshire line (Orchard Street)	Northerly		1.207	1.207		
Adams	1897	Cheshire line (Maple Grove) #	Northerly		1.459	1.459		24,460 44
Agawam	1911-9-7-6-4-3	Connecticut line to Southend Bridge	Northerly		.569	.569		
Amesbury	1899-1901-3-4	Merrimac line	Northerly		3.993	3.993		46,856 28
Amesbury	1906-7-12	Salisbury line	Easterly		2.243	2.243		
Amherst	1904-1	Hadley line	Northwesterly		1.052	1.052		38,043 13
Amherst	1913-19	Sunderland line	Northeasterly		.971	.971		
Amherst	1915-19	South Hadley line	Southerly		1.281	1.281		72,464 75
Andover	1895-6	Lawrence line	Northerly		4.804	4.804		
Arlington	1897-9-1900-2-3-20	North Reading line	Southerly		1.206	1.206		55,456 27
Arlington	1916	Lexington line	Northerly		3.147	3.147		
Ashburnham	1911	New Hampshire line	Southeasterly		1.297	1.297		40,239 41
Ashburnham	1916	Winchendon line to Westminster line <sup>2</sup>	Southeasterly		.672	.672		23,212 78
Ashby	1899-8-7-6-5-4-1921-17	Fitchburg line to Ashburnham line	Southeasterly		5.475	5.475		
Ashby	1910-11-12	Townsend line	Northwesterly		6.647	6.647		163,704 19
Ashfield	1897-8	1 mile north of Ashfield post office	Southwesterly		1.526	1.526		35,282 05
Ashland	1903	Southborough line	Northerly		1.608	1.608		
Ashland	1910	Framingham line to Holliston line	Easterly		1.473	1.473		13,822 90
Athol	1895-6	Orange line	Southerly		1.725	1.725		
Athol	1902-3	Phillipston line	Northeasterly		1.607	1.607		108,130 10
Athol	1919	Petersham line	Northwesterly		1.496	1.496		
Attleboro	1900-1-3	North Attleborough line	Northerly		2.479	2.479		
Attleboro	1909	Norton line	Southwesterly		2.651	2.651		20,722 11
			Northwesterly		.738	.738		





HIGHWAYS LAID OUT OR CONTRACTED FOR AND CONSTRUCTION EXPENDITURES TO DEC. 1, 1921 — *Continued.*

TOWN OR CITY.	Year. <sup>1</sup>	ROADS LAID OUT.			Length con- structed (Miles).	Construc- tion Ex- penditures to Dec. 1, 1921.
		From —	Direction.	Length (Miles).		
Brimfield	1897-9	Monson line	Southerly	2.338	2.338	\$25,053 43
Brimfield	1901-2	Wales line	Northerly	1.629	1.629	
Brookton	1899-8-7	Easton line	Northeasterly	1.867	1.867	
Brookton	1904	West Bridgewater line	Northerly	.662	.662	40,569 97
Brookton	1914	Stoughton line	Southerly	.604	.604	
Brookton	1900	Abington line	Westerly	.657	.657	
Brookfield	1898-7-1904	East Brookfield line	Southwesterly	.904	.904	
Brookfield	1902-3	West Brookfield line	Easterly	.871	.871	54,612 93
Buckland	1894-5-6-7-8-9-1900-3-7	Shelburne Falls railroad station	Westerly	4.280	4.280	
Burlington	1913	Charlemont line (Scott's Bridge)	Southerly	.025	.025	67,043 07
Burlington	1903-4-5-6	Woburn line to Billerica line	Northwesterly	3.799	3.799	34,809 50
Canton	1905-6-7-8	Stoughton line	Northerly	3.232	3.232	25,555 28
Canton	1921	Milton line	Southerly	1.118	1.118	
Charlemont	1914-12-15-1897-8-9-1915-16-14-13	Savoy line to Buckland line	Easterly	11.919	11.919	207,807 80
Charlton	1907-10-11-12-6-5-19-9-13-14-15	Oxford line to Southbridge line	Southwesterly	8.463	8.463	139,854 88
Charlton	1902-1	Charlton City to Charlton Depot	Northerly	1.913	1.913	
Chartham	1905-6-2-1-1899	Harwich line	Easterly	4.038	4.038	46,032 94
Chartham	1907	Harwich line (Orleans Road)	Southwesterly	3.128	3.128	
Chelmsford	1903-4-8-11	Lowell line to Westford line <sup>2</sup>	Southwesterly	3.774	3.774	
Chelmsford	1915	Lowell line to Billerica line	Southerly	.981	.981	96,477 02
Chelmsford	1898-9-1901-7-10	Lowell line to Fyngsborough line <sup>3</sup>	Northwesterly	2.433	2.433	
Chelsea	1901-4	Chelsea River Lynn Road	Northerly	.959	.959	25,382 66
Cheshire	1910-1899-1900-13-1-2-13-14	Lanesborough line to Adams line	Northerly	6.670	6.670	103,350 83
Chester	1909-11-10-5-4-2-1-1900-1899-1902	Huntington line to Becket line	Northwesterly	6.616	6.616	74,428 00
Chicopee	1897-8-9	Springfield line	Northerly	.918	.918	54,138 18
Chicopee	1917-2-3-4-5-6-7	Chicopee River	Northerly	3.036	3.036	50,290 66
Chilmark	1913-5-6-8-9-11	Gay Head to West Tisbury line	Northeasterly	7.789	7.789	21,781 13
Clarksburg	1905-7-16-9-18	North Adams line to Vermont line	Northerly	2.754	2.754	
Clarksburg	1913	North Adams line to North Adams line	Westerly	1.122	1.122	
Colasset	1897-9-1900	About 800 feet east of Hingham line	Easterly	1.733	1.733	16,541 20
Colasset	1903-2	Situate line	Northerly	.547	.547	

Colrain . . . . .	1898-1901-5	Shelburne line . . . . .	Northeasterly	2,133	13,443 20
Concord . . . . .	1897-8	Lincoln line . . . . .	Westerly	1,462	48,053 06
Concord . . . . .	1900-5-6	Acton line (Littleton Road)	Southeasterly	2,128	880 83
Concord . . . . .	1913 . . . . .	Acton line (Harvard Turnpike)	Southeasterly	.600	217,613 78
Conway . . . . .	1918 . . . . .	Deerfield line . . . . .	Westerly	3,074	42,972 74
Cummington . . . . .	1919 . . . . .	Swift River post office	Northeasterly	3,370	125,603 17
Cummington . . . . .	1920-19	Point 1,100 feet easterly of Windsor line	Westerly	3,370	38,475 87
Dakota . . . . .	1895-6-1903-4	through West Cummington . . . . .	Northerly and easterly	2,746	53,689 36
Danvers . . . . .	1919	Pittsfield line . . . . .	Easterly	2,557	91,832 33
Danvers . . . . .	1921-15-19-20	Windsor line . . . . .	Southeasterly	.314	51,762 93
Danvers . . . . .	1920-21	Middleton line to Peabody line . . . . .	Southeasterly	2,569	70,120 22
Dartmouth . . . . .	1913-1898-9-1900-1-3-5	Peabody line to Topsfield line . . . . .	Northeasterly	3,371	19,982 31
Dedham . . . . .	1913-15	Westport line to New Bedford line . . . . .	Southeasterly	2,441	11,528 29
Dedham . . . . .	1908 . . . . .	Westwood line . . . . .	Northeasterly	3,262	99,229 48
Dedham . . . . .	1914	Boston line (Washington street)	Northerly	3,186	46,635 29
Deerfield . . . . .	1900-1-2-3-18-10-9-11-9-8-7-6-5-4-13	Boston line . . . . .	Southeasterly	1,355	59,672 61
Deerfield . . . . .	1895-4-1917	About 240 feet southwest of Greenfield line	Northerly	3,758	17,207 06
Dennis . . . . .	1895-6-7-8	to Whately line . . . . .	Northeasterly	2,847	28,132 28
Dennis . . . . .	1900-1-2-4-6	West bank of the Connecticut River to	Southeasterly	.534	
Dighton . . . . .	1902-3	Conway line . . . . .	Westerly	1,591	
Dighton . . . . .	1906-5-6-8-11-12-14-10-9	Yarmouth line to Brewster line . . . . .	Northeasterly	2,181	
Douglas . . . . .	1905 . . . . .	Yarmouth line to Harwich line . . . . .	Westerly	2,441	
Douglas . . . . .	1902-4	Taunton line to Rehoboth line . . . . .	Northeasterly	3,262	
Dover . . . . .	1905-7	Taunton line to point 400 feet from Som-	Northeasterly	3,186	
Dover . . . . .	1905-6-7-19	erset line . . . . .	Southerly	4,534	
Dracut . . . . .	1912	Main Street . . . . .	Southeasterly	.534	
Dudley . . . . .	1902-4-6-7-16	Sutton line . . . . .	Southeasterly	1,591	
Dudley . . . . .	1921	Needham line . . . . .	Westerly	2,181	
Duxbury . . . . .	1894-5-7-9-1903-5-8-9	Near Lowell line (Methuen line)	Northeasterly	2,441	
Duxbury . . . . .	1914-15	Lowell line to Methuen line . . . . .	Northeasterly	3,262	
East Bridgewater . . . . .	1916-18-16-17-18	Point near Webster line to Connecticut line	Southeasterly	3,186	
East Brookfield . . . . .	1898-1900-4-20-7-5	Connecticut line . . . . .	Northerly	1,355	
East Brookfield . . . . .	1912	Marshfield line to Kingston line . . . . .	Southeasterly	3,758	
Eastham . . . . .	1903-9-5-4-6	Pembroke line to Whitman line . . . . .	Northerly	3,766	
		Bridgewater line to Spencer line . . . . .	Northeasterly	2,847	
		Brookfield line . . . . .	Southeasterly	.744	
		North Brookfield line . . . . .	Southerly	6,460	
		Wellfleet line to Orleans line . . . . .			

<sup>1</sup> The years indicated show the relative positions of various work done to carry out that described in columns 3 and 4.

<sup>2</sup> Exclusive of 3,336.05 feet near Fletcher Street.

<sup>3</sup> Exclusive of 906.24 feet near railroad crossing.

HIGHWAYS LAID OUT OR CONTRACTED FOR AND CONSTRUCTION EXPENDITURES TO DEC. 1, 1921 — *Continued.*

TOWN OR CITY.	Year. <sup>1</sup>	ROADS LAID OUT.			Length constructed (Miles).	Construction Expenditures to Dec. 1, 1921.
		From —	Direction.	Length (Miles).		
Easthampton	1895-6	Northampton line	Southerly	1.285	1.285	
Easthampton	1900-1	Clark Street to Mount Tom	Southeasterly	1.098	1.098	\$27,565 95
Easthampton	1913	Holyoke line to Northampton line	Northwesterly	3.355	3.355	
East Longmeadow	1910-6-4	Springfield line	Southeasterly	1.799	1.799	19,867 65
Easton	1900	Brockton line	Southwesterly	2.427	2.427	4,367 93
Edgartown	1917-1897-9-1900-1-2-3	Oak Bluffs line	Southerly	2.801	2.801	17,590 53
Egmont	1915-20-21	New York line to Great Barrington line	Easterly	4.188	3.402	130,461 98
Egmont	1917	Sheffield line	Northwesterly	2.060	2.060	108,163 58
Erving	1900-1899-8-1912-11-14-10-9	Orange line to Millers Falls	Westerly	8.123	8.123	25,786 06
Essex	1912-3-2	Gloucester line	Westerly	1.457	1.457	
Fairhaven	1894-5-1916	Mattapoisett line	Southwesterly	2.093	2.093	63,306 55
Fairhaven	1917	Acushnet line	Southerly	1.634	1.634	
Fall River	1915	Brightman Street Bridge approach	—	.032	.032	
Falmouth	1904-5	Bourne line	Southerly	11.615	11.615	42,052 59
Falmouth	1910-9-8-7-6-5	Mashpee line	Southwesterly	3.912	3.912	
Fitchburg	1900-1-3-4	Ashby line	Southerly	2.540	2.540	51,198 72
Fitchburg	1897	Lanenburg line	Westerly	.605	.605	
Fitchburg	1894-5	Westminster line	Easterly	.973	.973	
Florida	1914-13	North Adams line to Savoy line	Southeasterly	7.192	7.192	134,722 06
Foxborough	1901-2	Mansfield line	Northwesterly	1.815	1.815	19,537 02
Foxborough	1905-8	Wrentham line	Easterly	1.699	1.699	
Framingham	1905-4	Wrentham line	Easterly	2.432	2.432	17,335 26
Framingham	1910	Ashland line	Northwesterly	.773	.773	
Franklin	1905-7-10	Bellingham line	Northwesterly	2.579	2.579	29,713 89
Franklin	1911	Wrentham line	Northwesterly	1.184	1.184	
Freetown	1902-3	New Bedford line to Lakeville line	Northwesterly	3.193	3.193	28,255 70
Freetown	1908	Fall River line	Northwesterly	.676	.676	
Gardner	1897-8	Templeton line	Southeasterly	2.371	2.371	44,612 63
Gardner	1900-1	Westminster line	Northwesterly	.985	.985	9,702 98
Gay Head	1913	Chilmark line	Northwesterly	3.134	3.134	4,522 20
Gill	1912	Northfield line to Bernardston line	Westerly	.284	.284	
Gloucester	1907	Rockport line	Southerly	3.464	3.464	141,829 77
Gloucester	1894-5-8-1905-6-7	Manchester line	Northwesterly	2.762	2.762	
Gloucester	1915-16	Essex line	Southeasterly			

Coshen .	1895-4-1908	Williamsburg line	Northwesterly	2,460	2,460	46,440 20
Craton .	1897-9-1900-5-12-13-14-15	Millbury line to Northbridge line	Southeasterly	6,510	6,510	92,568 39
Craton	1918	Upton line	Northwesterly	3,068	3,068	
Cratby	1915	South Hadley line	Northwesterly	2,034	2,034	87,008 07
Cratby	1894-1902-5-6-8-10-11-13-14	South Hadley line to Belchertown line	Easterly	5,652	5,652	
Great Barrington .	1894-6-7-1902	Housatonic River	Easterly	3,409	3,409	153,467 25
Great Barrington .	1917-10-19	Stockbridge line	Southerly	4,385	4,385	
Great Barrington .	1919	Sheffield line	Northerly	909	909	
Greenfield	1910-8-7-6-3	Barnardston line	Northwesterly	3,768	3,768	
Greenfield	1905	Colrain Road	Southerly	2,922	2,922	228,022 87
Greenfield	1899-1914-1900-2	Washington Street to Cheapside Bridge	Easterly	1,421	1,421	
Groton .	1919	Shelburne line	Southeasterly	2,337	2,337	
Groton .	1907-1-2	Pepperell line	Southeasterly	1,410	1,410	201,670 75
Groton .	1914	Pepperell line to Townsend line	Northwesterly	1,105	1,105	
Groton .	1919	Littleton line	Northwesterly	3,836	3,836	
Groveland	1905-1900-1-2	Merrimac River Bridge to West Newbury line	Northwesterly	1,723	1,723	22,613 35
Hadley .	1904-3-2-1899-1901-1899-8-7		Northwesterly	4,690	4,690	73,541 83
Hamilton	-6-5	Amherst line to Northampton line	Southwesterly	3,101	3,101	36,438 40
Hancock	1909-10-16-1899-1900	Wenham line to Ipswich line	Northerly	3,232	3,232	51,981 28
Hanover	1895-6-8-9	Pittsfield line to New York line	Westerly	1,847	1,847	85,517 37
Hanover	1906-8	Pembroke line	Northwesterly	3,850	3,850	
Hardwick	1917-18	Norwell line	Southerly	819	819	6,344 68
Harvard	1897-1901	New Braintree line	Northerly	2,316	2,316	29,361 41
Harvard	1910-1900-5	Boxborough line	Westerly	5,098	5,098	33,756 03
Harwich	1899-1900-1-2-3	Dennis line to Chatham line	Easterly	1,379	1,379	52,243 68
Harwich	1908	Chatham line to Brewster line	Northerly	3,540	3,540	83,475 14
Hatfield	1910-7-3	Northampton line to Whately line	Southwesterly	2,657	2,657	
Haverhill	1910-7-3	Merrimac line	Northwesterly	2,629	2,629	
Haverhill	1906-1899	Methuen line	Northwesterly	1,286	1,286	170,430 94
Haverhill	1912	North Andover line	Westerly	2,629	2,629	
Hingham	1916-1897-6	Cohasset line	Easterly	2,242	2,242	14,123 35
Hingham	1894-1917	Weymouth line	Northwesterly	1,017	1,017	27,447 44
Hingham	1919	Norwell line to Weymouth line	Southeasterly	2,508	2,508	
Hingsdale	1901-2-3	Dalton line	Northwesterly	1,739	1,739	
Hingsdale	1920	Washington line	Northwesterly	1,823	1,823	
Holbrook	1894-6-1902	Weymouth line	Southerly	1,353	1,353	72,235 48
Holbrook	1917	Braintree line	Northwesterly	6,949	6,949	
Holbrook	1921	Brockton line	Northwesterly			
Holden .	1905-15-1896-5-7-4-1915-8-1900-1898	Rutland line to Worcester line	Southeasterly			

1 The years indicated show the relative positions of various work done to carry out that described in columns 3 and 4.

HIGHWAYS LAID OUT OR CONTRACTED FOR AND CONSTRUCTION EXPENDITURES TO DEC. 1, 1921 — *Continued.*

TOWN OR CITY.	Year. <sup>1</sup>	ROADS LAID OUT.			Length (Miles).	Length con- structed (Miles).	Construc- tion Ex- penditures to Dec. 1, 1921.
		From —	Direction.				
Holliston	1906-7-10	Milford line	Northeasterly		3.314	3.314	\$45,213 45
Holliston	1911-12	Ashland line	Southerly		1.610	1.610	22,683 01
Holyoke	1910-6-5	Easthampton line	Southerly		4.167	4.167	97 10
Hopedale	1918	Milford line to Upton line	Westerly		316	316	8,142 03
Hudson	1907-6	Marlborough line	Northerly		1.142	1.142	
Huntington	1895-6-1917-3-6-9	Russell line to Chester line	Northwesterly		2.649	2.649	176,586 45
Huntington	1918-20	Worthington line	Southerly		8.444	5.366	
Ipswich	1909-6-7	Hamilton line	Northerly		2.134	2.134	40,835 11
Ipswich	1910-11	Rowley line	Southeasterly		2.287	2.287	
Kingston	1905-6	Duxbury line	Southwesterly		1.016	1.016	
Kingston	1916	Duxbury line	Southerly		.811	.811	26,267 08
Kingston	1917-21	Plymouth line	Northwesterly		2.313	.712	
Lakeville	1901-2	Middleborough line	Southerly		3.570	3.570	56,045 43
Lakeville	1910-11-12	Freetown line to Berkley line	Northeasterly		4.790	4.790	
Lancaster	1902	Clinton line to Sterling line	Westerly		1.249	1.249	7,342 74
Lancaster	1911-13-12	Cheshire line to Pittsfield line	Southerly		2.280	2.280	
Lancaster	1919	Point 150 feet north of Pratt Brook	Southerly		.990	.990	80,026 58
Lanesborough	1921	Two bridges and approaches on New Ash- ford Road	Northerly		.178	.178	
Lawrence	1896	Methuen line	Southerly		.267	.267	18,485 36
Lawrence	1915	Methuen line	Easterly		.543	.543	
Lee	1906	Lenox line to Stockbridge line	Southerly		1.020	1.020	167,954 81
Lee	1900	Lenox line to Lee post office	Southerly		1.259	1.259	
Lee	1906-15	Stockbridge line to East Lee	Northeasterly		3.271	3.271	
Lee	1894-5-6-1908-9-13-12	Becket line	Westerly		5.156	5.156	157,032 44
Leicester	1894-5-1920-1896-8-9	Worcester line to Spencer line	Westerly		5.437	5.437	39,165 93
Lenox	1905-4-5	Pittsfield line	Southerly		3.181	3.181	
Lenox	1906	Stockbridge and Lee line	Northerly		2.200	2.200	31,192 99
Lenox	1900-1899-1901	Lee line	Northwesterly		2.282	2.282	
Lenox	1902-1-15	Sterling line	Northerly		2.549	2.549	
Lexington	1898-7-6-5	Lincoln line	Easterly		3.446	3.446	
Lexington	1900	Bedford line	Southeasterly		.845	.845	54,916 98
Lexington	1916	Arlington line	Northwesterly		.333	.333	
Lexington	1919	Woburn line to Lowell Street	Southwesterly		.383	.383	

Lincoln .	1895-6-7	Concord line to Lexington line	Easterly	2.060	17,302 38
Littleton .	1902-3-4-8-19	Acton line to Groton line (Great Road)	Northwesterly	5.256	
Littleton .	1902	Westford line	Southwesterly	.337	170,024 14
Littleton .	1912-20-12-13-18	Ayer line (King Street)	Southwesterly	3.235	
Lowell .	1897	Tyngsborough line	Southwesterly	.969	
Lowell .	1897-8	Chelmsford line	Easterly	1.334	22,990 33
Lowell .	1900	Tewksbury line	Northwesterly	.351	
Lunenburg .	1898-9-1900-1-3-10-13	Fitchburg line to Shirley line	Easterly	5.886	64,195 46
Lynn .	1899	Revere line (Shore Road)	Northwesterly	.905	
Lynn .	1914	Lynnfield line	Northerly	1.985	193,363 68
Lynn .	1916	Salem line	Southwesterly	.369	
Lynn .	1917	Foxhill Bridge (Saugus line)	Northerly	.403	
Lynnfield .	1914-21	Lynn line to Newburyport Turnpike	Northwesterly	.031	137,208 17
Lynnfield .	1920	Saugus line to Peabody line (Newburyport Turnpike)	Northerly	1.491	
Malden .	1918	Melrose line	Southwesterly	.151	6,304 93
Mansfield .	1901	Foxborough line	Southerly	.720	10,068 19
Marion .	1906	Norton line	Northerly	.493	
Marion .	1902-1-1890-7-1914-3-1894-5-1	Mattapoisett line to Wareham line	Northerly	4.834	38,557 65
Marion .	1903	Rochester line	Southwesterly	1.776	
Marlborough .	1897-1904-3-2-4	Sudbury line	Westerly	3.114	86,318 61
Marlborough .	1897-9-1900-1-16	Northborough line	Easterly	2.590	
Marlborough .	1908-11	Hudson line	Southerly	1.278	54,626 51
Marshfield .	1894-6-8-9-1901-2-4-7-10-9	Duxbury line to Scituate line	Northerly	8.277	70,374 44
Mashpee .	1911-12-13-14	Falmouth line to Sandwich line	Westerly	5.724	
Mashpee .	1916	Barnstable line	Westerly	2.088	24,528 57
Mattapoisett .	1894-5	Fairhaven line	Easterly	1.162	30,974 24
Mattapoisett .	1903-1-1900	Marion line	Northwesterly	2.044	12,230 89
Medford .	1907	Somerville line (at Mystic River)	Westerly	.862	35,759 36
Melrose .	1906	Saugus line	Northwesterly	.395	23,486 74
Melrose .	1917	Malden line to Saugus line	Northerly	.173	153,940 98
Mendon .	1918	Hopedale line	Southwesterly	.928	
Mendon .	1921	Uxbridge line	Easterly	.918	63,281 91
Merrimac .	1901-3	Amesbury line	Westerly	1.206	
Methuen .	1910-1897-8-9	Haverhill line	Northwesterly	1.025	
Methuen .	1912-16-15	Draught line to Lawrence line	Westerly	4.109	
Methuen .	1896-1900-1-2-8-7-6	Lawrence line to Haverhill line	Northwesterly	3.688	
Middleborough .	1906-7-8-6	Bridgewater line (Taunton River)	Southerly	3.465	
Middleborough .	1903-2-1898-8-6-1904-5-6	Rochester line	Northwesterly	8.978	

<sup>1</sup> The years indicated show the relative positions of various work done to carry out that described in columns 3 and 4.

HIGHWAYS LAID OUT OR CONTRACTED FOR AND CONSTRUCTION EXPENDITURES TO DEC. 1, 1921 — *Continued.*

TOWN OR CITY.	Year. <sup>1</sup>	ROADS LAID OUT.			Length constructed (Miles).	Construction Expenditures to Dec. 1, 1921.
		From —	Direction.	Length (Miles).		
Middleton	1921-14-13-12	Danvers line (at Ipswich River) to North Andover line <sup>2</sup>	Northwesterly	4.553	2.655	\$130,611 94
Milford	1905-4	Hopedale line	Southeasterly	1.745	1.745	31,163 99
Milford	1909-10	Holliston line	Southwesterly	1.801	1.801	
Millbury	1900-3-4	Worcester line	Southeasterly	1.612	1.612	
Millbury	1902	Grafton line to Worcester line	Westerly	.782	.782	28,157 11
Millbury	1906	Sutton line	Northerly	.587	.587	
Millville	1899-1900-2	Uxbridge line to Blackstone line	Southeasterly	1.657	1.657	
Milton	1899-1917-1899-1900	Neponset River	Southeasterly	1.057	1.057	15,573 20
Monson	1908	Palmer line to Palmer line	Easterly	.287	.287	
Monson	1901-5	Palmer line to Brimfield line	Southeasterly	.394	.394	16,302 49
Monson	1894	Railroad Bridge towards Palmer	Northerly	.934	.934	
Montague	1899-8-1904-6-10	Turners Falls to Millers Falls	Southeasterly	4.052	4.052	52,267 21
Montague	1905-9	Connecticut River Bridge	Northeasterly	1.678	1.678	
Nantucket	1903-1896-1901-1900-1899-7-6-5-4	First Mile Stone, Siasconset	Easterly	6.479	6.479	53,049 14
Natick	1901	Wellesley line	Southwesterly	1.135	1.135	21,634 66
Natick	1903	Frammingham line	Easterly	2.069	2.069	
Needham	1901	Newton line (Charles River)	Southwesterly	.965	.965	11,612 71
Needham	1905	Dover line (Charles River)	Northerly	1.040	1.040	
New Ashford	1921	Eight bridges and approaches on Lanesborough Road				
New Braintree	1897	Hardwick line to Ware line	Northerly	1.000	1.000	
New Braintree	1903	New Braintree Village	Southerly	.174	.174	3,944 07
Newbury	1899-1900-1-2-4-6-5	Newburyport line to Rowley line	Northerly	.223	.223	34,042 79
Newburyport	1896-7-8	West Newbury line	Southerly	4.231	4.231	
Newburyport	1913	Merrimac Street	Easterly	1.754	1.754	34,307 69
Newburyport	1918	Newbury line	Northeasterly	.094	.094	
New Marlborough	1917	Sheffield line	Northeasterly	.372	.372	
Newton	1901	Needham line	Easterly	.230	.230	46 85
North Adams	1895	Wrentham line to Walpole line	Easterly	1.032	1.032	6,836 54
North Adams	1895-4-6-7	Williamstown line	Northeasterly	1.446	1.446	16,602 60
North Adams	1903-2-1-1900	Adams line	Easterly	2.173	2.173	
North Adams	1913	Florida line	Northerly	2.319	2.319	95,637 05
North Adams			Westerly	3.644	3.644	



1894	1897-99-1900-5-1899-8	Connecticut River Bridge	Southwesterly	569
Northampton	1897-99-1900-5-1899-8	Easthampton line	Northeasterly	1,462
Northampton	1912-15	Hatfield line	Southerly	2,180
Northampton	1912	Easthampton line (River Road)	Northerly	1,440
Northampton	1918	Williamsburg line	Southerly	1,352
Northampton	1900-2-4	Lawrence line	Southeasterly	1,890
North Andover	1907-11-10-12	Haverhill line	Southerly	3,721
North Andover	1915-14-13	Middleton line	Southerly	4,993
North Andover	1897-6-5-4	Attleborough line	Northerly	3,598
North Attleborough	1897-8-1911-18-4-2-1900	Marlborough line to Shrewsbury line	Southerly	4,937
Northborough	1897	Westborough line	Northerly	423
Northborough	1913	Grafton line	Southerly	777
Northbridge	1919-16-15-14	Uxbridge line	Southerly	3,722
North Brookfield	1910-8-7-6-5	Brookfield line	Northerly	2,952
Northfield	1912-19-1-2-12	Winchester, N. H., line	Northerly	4,735
Northfield	1912	Gill line to Gill line	Southerly	4,735
North Reading	1897-8-1901-11-3	Andover line to Reading line	Southerly	2,538
Norton	1908-9-10-3	Attleboro line	Northeasterly	4,193
Norton	1906	Mansfield line	Southerly	502
Norton	1917-16	Taunton line	Northeasterly	2,926
Norwell	1919	Hingham line to Hanover line	Southerly	2,138
Norwood	1897-9	Walpole line	Southeasterly	1,036
Norwood	1916-1896	Westwood line	Northeasterly	1,087
Oak Bluffs	1917-1896-5-4	Edgartown line	Southerly	2,387
Oakham	1917	Barre line to Rutland	Southeasterly	2,792
Orange	1900-1-3-4-5	Erving line	Southerly	2,612
Orange	1894-5-7	Athol line	Westerly	2,183
Orleans	1900-1-4	Brewster line to Eastham line	Northeasterly	1,980
Orleans	1908-5-4-3	Brewster line	Northerly	2,718
Oxford	1913-14-16	Webster line	Northerly	2,275
Oxford	1908-9-20	Charlton line to within 64 feet of Auburn line	Northeasterly	2,252
Oxford	1906-7-21	Auburn line	Southerly	4,057
Palmer	1908-5-8-1-1900-1899	Warren line	Southerly and westerly	7,525
Palmer	1901	Monson line	Northeasterly	1,175
Palmer	1908-6-9-13	Wilbraham line	Southerly	2,336
Palmer	1917	Ware line	Southeasterly	4,329
Paxton	1895-6-7-8-1902	Worcester line	Northeasterly	3,597
Peabody	1920	Andover Street (Danvers line)	Southeasterly	526
Peabody	1920	Lynnfield line to Danvers line (Newburyport Turnpike)	Northeasterly	2,712

<sup>1</sup> The years indicated show the relative positions of various work done to carry out that described in columns 3 and 4.

<sup>2</sup> Exclusive of 708.14 feet in center of town.

HIGHWAYS LAID OUT OR CONTRACTED FOR AND CONSTRUCTION EXPENDITURES TO DEC. 1, 1921 — *Continued.*

TOWN OR CITY.	Year. <sup>1</sup>	ROADS LAID OUT.			Length (Miles).	Length con- struc- ted to Dec. 1, 1921.
		From —	Direction.	Length (Miles).		
Pembroke	1905-15	Hanover line to Duxbury line.	Southeasterly	4.345	4.345	\$27,988 16
Pepperell	1907-10-11-14	Groton line to Nashua River Bridge	Southeasterly	3.577	3.577	35,651 83
Petersham	1918-19	Barre line to Athol line	Northerly	8.186	8.186	147,197 03
Phillipston	1902-1897-8-1904-9	Athol line to Templeton line	Easterly	2.785	2.785	31,134 20
Pittsfield	1897-1906-7	Dalton line	Southwesterly	2.365	2.365	
Pittsfield	1894-8-1901-2-13-9	Hancock line	Easterly	3.643	3.643	
Pittsfield	1905-4	Lenox line	Northerly	1.580	1.580	108,192 18
Pittsfield	1913	Lanesborough line	Southerly	1.465	1.465	
Pittsfield	1899-4-5-1911	Wrentham line to North Attleborough line	Southerly	2.293	2.293	
Plymouth	1914-13-11-10-7-1894-6-5-7-8-1902-4-16	Bourne line	Northerly and westerly	14.300	14.300	6,075 98
Princeton	1897-1900-2-3	Princeton Depot	Easterly	2.230	2.230	145,323 65
Provincetown	1903-1-3	Truro line	Westerly	1.102	1.102	21,948 85
Provincetown	1920	Point on 1903 layout to point on Bradford Street	Westerly	.238	.238	
Provincetown	1916	New York, New Haven & Hartford Railroad (near depot)	Northwesterly	2.528	2.528	23,418 26
Quincy	1899	Fore River (Weymouth line)	Westerly	.494	.494	
Quincy	1902-9	Braintree line	Northwesterly	.949	.949	
Quincy	1904	Randolph line to Milton line	Northerly	1.232	1.232	71,035 35
Quincy	1921	Braintree line (Willard Street)	Northerly	.552	.552	
Randolph	1902-3-9	Quincy line	Southerly	1.900	1.900	
Randolph	1915	Avon line	Northerly	1.810	1.810	49,560 90
Randolph	1901-2-3	Taunton line	Northerly	1.477	1.477	
Raynham	1912-13-14	Easton line to Taunton line	Northwesterly	4.176	4.176	52,862 99
Reading	1899-1900-15	Stoneham line to Reading Depot	Southerly	4.176	4.176	
Reading	1902-3	Reading Square to point near North Reading line	Northerly	1.256	1.256	
Rehoboth	1895-6-9-1903-5-6-7-8	Seekonk line to Dighton line	Northerly	2.667	2.667	31,010 71
Rehoboth	1912	Swansea line to Seekonk line	Easterly	6.034	6.034	59,715 93
Revere	1897	Boston line	Northwesterly	.512	.512	
Revere	1899-1913	Saugus line	Northerly	.577	.577	
Revere	1913-16	Point of Pines	Southerly	1.112	1.112	408,998 10
Richmond	1907-6-5-4-3-2-1-1899-8-7	Pittsfield line	Southwesterly	3.332	3.332	
Richmond			Southwesterly	4.017	4.017	33,348 45

Rochester	1903	Acushnet line to Marion line	Easterly	5.270	5.270	7,948 43
Rochester	1909	Middleborough line to Wareham line	Southeasterly	.900	.900	13,515 80
Rockland	1902-6-5	Abington line to Hanover line	Easterly	2.354	2.354	21,061 52
Rockport	1906-2-10	Gloucester line	Northeasterly	1.600	1.600	22,767 50
Rowley	1905-7-8-9-11	Newbury line to Ipswich line	Southwesterly	3.633	3.633	93,959 40
Russell	1896-4-6-7-8-9-8-5-4	Westfield line to Huntington line	Northwesterly	6.676	6.676	9,734 21
Russell	1917	Blandford line	Easterly	3.044	3.044	71,012 13
Rutland	1907-19-4	Oakham line to Holden line	Easterly	5.540	5.540	
Salem	1901-9	Swampscott line	Northerly	1.398	1.398	
Salisbury	1914	Lynn line	Northeasterly	1.912	1.912	
Salisbury	1911-12	Amesbury line	Easterly	1.742	1.742	
Salisbury	1913-14	Salisbury Centre	Easterly	2.172	2.172	
Salisbury	1910	Seabrook, N. H., line	Southeasterly	2.410	2.410	
Salisbury	1912-5-4	Bridge over Merrimac River	Northeasterly	1.559	1.559	
Salisbury	1916	Seabrook, N. H., line (Beach Road)	Southerly	2.020	2.020	
Sandwich	1897-8-1900-2-10-12-13-19-13	Barnstable line to Bourne line	Northwesterly	7.589	7.589	
Sandwich	1919	On Maspee Road	Southerly	1.818	1.818	
Sandwich	1914	Maspee line to Barnstable line	Easterly	.114	.114	
Saugus	1898-1913	Revere line to near draw bridge over Saugus River	Northeasterly	1.641	1.641	
Saugus	1906-14	Melrose line to Newburyport Turnpike	Easterly	.864	.864	
Saugus	1917-19	Melrose line to Lynnfield (Newburyport Turnpike)	Northerly	3.972	3.972	
Savoy	1913-14	Florida line to Charlemont line	Easterly	1.803	1.803	
Scituate	1906-1895-4-1900-3-6-8-9-10	Conasset line to Marshfield line	Southeasterly	5.374	5.374	
Seekonk	1904-2-1-1900	Rhode Island line to Rehoboth line	Easterly	2.757	2.757	
Seekonk	1913-11-10	Rehoboth line	Northwesterly	3.272	3.272	
Sharon	1908	Foxborough line	Northeasterly	.638	.638	
Sheffield	1912-13-14-15-18	Connecticut line to Egremont line	Northwesterly (Under Mountain Road)	5.874	5.874	
Sheffield	1914-15-18	Connecticut line	Northerly (Ashley Falls Road)	2.587	2.587	
Sheffield	1917	New Marlborough line to Connecticut line	Westerly	.423	.423	
Sheffield	1919	Great Barrington line	Southerly	2.620	2.620	
Shelburne	1897-6-5-4	Colrain line	Southerly	2.159	2.159	
Shelburne	1916-19	Shelburne Falls to Greenfield line	Easterly	7.220	7.220	
Shirley	1913-14	Ayer line to Lunenburg line	Westerly	3.018	3.018	
Shrewsbury	1895-6-7-8-9-1900-4	Worcester line to Northborough line	Northeasterly	4.854	4.854	
Somerset	1915-14	Swansea line	Easterly	1.853	1.853	
Somerset	1903-4-5	Swansea line	Southeasterly	2.401	2.401	
Somerset	1910-2-1-1895-6-7-9-1900	Point near Dighton line	Southerly	5.379	5.379	
Somerset	1909	Riverside Avenue to Brayton Avenue	Westerly	.225	.225	
Somerset	1915	Taunton, Great River Bridge approach	Easterly	.061	.061	

1 The years indicated show the relative positions of various work done to carry out that described in columns 3 and 4.

HIGHWAYS LAID OUT OR CONTRACTED FOR AND CONSTRUCTION EXPENDITURES TO DEC. 1, 1921 — *Continued.*

TOWN OR CITY.	Year. <sup>1</sup>	ROADS LAID OUT.			Length constructed (Miles).	Construction Expenditures to Dec. 1, 1921.
		From —	Direction.	Length (Miles).		
Somerville	1908	Medford line	Southeasterly	1.160	1.160	\$50,441 07
Somerville	1914	Middlesex Avenue (from point on 1908 layout)	Northerly	.423	.423	
Southampton	1905-9	Easthampton line	Southwesterly	.708	.708	13,948 99
Southborough	1907	Ashland line	Westerly	.653	.653	
Southborough	1909	Framingham line	Westerly	1.143	1.143	22,148 17
Southborough	1903-5	Westborough line	Easterly	1.895	1.895	
Southbridge	1907	Sturbridge line	Southeasterly	.448	.448	
Southbridge	1902	Charlton line	Southeasterly	.909	.909	11,125 21
Southbridge	1915	Amherst-Granby-South Hadley line	Southerly	.308	.308	
South Hadley	1912-9-4-3	Granby line	Southerly	4.637	4.637	67,656 97
South Hadley	1895-7-8-9-1900	Granby line	Southeasterly (Granby Road)	2.419	2.419	
Spencer	1906-11-6-10	East Brookfield line	Northeasterly	1.439	1.439	
Spencer	1897-1900-1	Leicester line	Southwesterly	1.600	1.600	45,074 11
Sterling	1905-7-9-14-15	Lancaster line	Westerly	2.413	2.413	
Sterling	1906-7-14-13-1897-8-1912	Leominster line to West Boylston line	Southerly	5.745	5.745	118,310 29
Stockbridge	1905-9	Lee line	Westerly	1.066	1.066	
Stockbridge	1906	Lee line	Southwesterly	2.229	2.229	39,321 16
Stockbridge	1917	Great Barrington line	Northerly	.958	.958	
Stonham	1898-7	Marble Street	Southerly	.569	.569	
Stonham	1900-1	Reading line	Southerly to Farm Hill Station	1.013	1.013	14,952 32
Stoughton	1903-2	Canton line	Southerly	1.162	1.162	
Stoughton	1905-4	Easton line	Northerly	2.141	2.141	41,891 41
Stoughton	1914-15	Brookton line	Northeasterly	2.258	2.258	
Sturbridge	1907-1897-1903-4-9	Southbridge line	Southwesterly	2.353	2.353	29,404 97
Sudbury	1897-8-1900-1-2-1	Marlborough line to Wayland line	Easterly	4.889	4.889	37,053 79
Sudbury	1903	Wayland line to Wayland line	Easterly	.225	.225	
Sunderland	1913-14-9-7-6-4-3-1897	Amherst line	Northeasterly to Deerfield	3.971	3.971	51,271 14
Sutton	1899-1901-2-20-4-3	Millbury line to Douglas line	Southwesterly	6.897	6.897	15,405 41
Swampscott	1897-1900-1	Salem line	Southwesterly	1.491	1.491	29,433 53
Swampscott	1915-16	Rhode Island line to bridge over Lees River	Easterly	2.811	2.811	
Swansea	1903-7-12-11-10-9-6-3	Rehoboth line to Somerset line	Southeasterly	6.649	6.649	48,474 53

Taunton	1906-5-13	Dighton line	Northerly (Somerset Avenue)	1,357
Taunton	1901-1900-1899-8-6-5	Dighton line	Northerly (Somerset Avenue)	2,933
Taunton	1912	Raynham line	Southwesterly	2,933
Taunton	1913-7	Berkley line	Southwesterly	383
Taunton	1914-17	Lakeville line	Northwesterly	2,366
Taunton	1919	Norton line	Southwesterly	1,477
Templeton	1899-1901-2-3	Gardner line	Southwesterly	2,116
Templeton	1909-8-7-6-5	Phillipston line	Southwesterly	2,002
Templeton	1921	Winchendon line	Northwesterly	2,002
Tewksbury	1900-1-15-2-3-4-5-6-7	Lowell line to Wilmington line	Southwesterly	3,686
Tisbury	1894	West Tisbury line to Vineyard Haven	Southerly	-
Topsfield	1921	Danvers line (Newburyport Turnpike)	Northwesterly	6,186
Townsend	1901-1900-1896-7-8-9-1902-21-7-11-7-10	Groton line to Ashby line	Northwesterly	1,926
Truro	1895-1906-15-20	Wellfleet line to Provincetown line	Westerly	-
Tyngsborough	1895-6	Lowell line	Northerly and northwesterly	6,515
Tyngsborough	1910-11-12-13-9	Chelmsford line to New Hampshire line	Northerly	10,093
Upton	1918-21-19	Graton line to Hopedale line	Northwesterly	2,942
Uxbridge	1897-8-1901-3-9-16	Blackstone line	Northwesterly	3,998
Uxbridge	1912-14	Northbridge line	Southwesterly	5,187
Uxbridge	1921	Mendon line	Southwesterly	3,617
Wales	1901-20	Brimfield line to Connecticut line	Westerly	1,198
Walpole	1897-5-4-1900-12-16	Norfolk line	Southwesterly	1,041
Walpole	1897-8-1911-1900	Norwood line	Southwesterly	5,100
Walworth	1897-1900-1899-1903	Weston line	Southwesterly	3,326
Ware	1908-10	New Braintree line	Southwesterly	1,951
Ware	1920	Ware Village	Easterly	952
Wareham	1909-8-7-6-5-19	Ware Village	Southwesterly	2,282
Wareham	1910-17	Rochester line	Westerly	1,894
Wareham	1898-1901-13	Wareham Narrows	Southwesterly	2,626
Wareham	1901-1896-1910-7-6	Butternut Bay Bridge	Southwesterly	4,402
Warren	1908-7-19-1896-7-8-1919-1899	Marion line	Easterly	4,715
Washington	1920-1	Palmer line to West Brookfield line	Westerly to Onset	1,924
Watertown	1895-6	Hinsdale line	Northwesterly	2,195
Wayland	1897-1900-20-1900-3	Walham line	Easterly	4,940
Webster	1911	Weston line to Sudbury line <sup>2</sup>	Southerly	2,229
Webster	1912-8	Oxford line	Westerly	2,229
Wellesley	1901	Connecticut line	Westerly	850
Wellfleet	1903-4-5-7-15	Natick line	Southerly	2,860
		Eastham line to Truro line	Northwesterly	831
			Easterly	1,172
			Northerly	1,176
				7,366

<sup>1</sup> The years indicated show the relative positions of various work done to carry out that described in columns 3 and 4.

<sup>22</sup> Exclusive of 250 foot gap at bridge over Sudbury River.

HIGHWAYS LAID OUT OR CONTRACTED FOR AND CONSTRUCTION EXPENDITURES TO DEC. 1, 1921 — *Concluded.*

TOWN OR CITY.	Year. <sup>1</sup>	ROADS LAID OUT.			Length con- structed (Miles).	Construc- tion Ex- penditures to Dec. 1, 1921.
		From —	Direction.	Length (Miles).		
Wenham . . . . .	1897-1901-3-8 . . . . .	Beverly line to Hamilton line . . . . .	Northerly . . . . .	1.762	1.762	\$13,258 35
Westborough . . . . .	1897 . . . . .	Northborough line . . . . .	Southerly . . . . .	.714	.714	22,370 37
Westborough . . . . .	1903-6 . . . . .	Southborough line . . . . .	Southwesterly . . . . .	2.277	2.277	69,241 51
West Boylston . . . . .	1897-8-1915-13 . . . . .	Worcester line to Sterling line . . . . .	Northerly . . . . .	4.303	4.303	16,439 39
West Bridgewater . . . . .	1900-1-2-4 . . . . .	Brookton line to Bridgewater line . . . . .	Southerly . . . . .	3.181	3.181	32,765 34
West Brookfield . . . . .	1899-1900-1 . . . . .	Brookfield line . . . . .	Northwesterly . . . . .	1.506	1.506	46,047 77
West Brookfield . . . . .	1905-13 . . . . .	Warren line . . . . .	Easterly . . . . .	1.157	1.157	14,422 98
West Brookfield . . . . .	1899 . . . . .	Ware line to Ware line . . . . .	Northeasterly . . . . .	.151	.151	65,374 59
Westfield . . . . .	1894-6-8-9 . . . . .	West Springfield line . . . . .	Westerly . . . . .	2.220	2.220	58,726 45
Westfield . . . . .	1902-1-1900-1899-8 . . . . .	Russell line . . . . .	Southwesterly . . . . .	3.584	3.584	16,212 44
Westford . . . . .	1902-12 . . . . .	Littleton line to Chelmsford line . . . . .	Northwesterly . . . . .	4.150	4.150	32,944 46
Westford . . . . .	1903 . . . . .	Westford Centre . . . . .	Southwesterly . . . . .	.799	.799	30,095 76
Westminster . . . . .	1894-5-6-7-8-9-1918-3 . . . . .	Fitchburg line to Gardner line . . . . .	Westerly . . . . .	5.755	5.755	8,080 05
Westminster . . . . .	1915 . . . . .	Ashburnham line to Fitchburg line . . . . .	Southwesterly . . . . .	2.268	2.268	64,722 85
West Newbury . . . . .	1895-6-7-1909-6-5-4-3 . . . . .	Newburyport line to Groveland line . . . . .	Southwesterly . . . . .	5.105	5.105	39,175 24
Weston . . . . .	1899-8 . . . . .	Wayland line . . . . .	Easterly . . . . .	3.152	3.152	48,539 03
Westport . . . . .	1913-1898-7-6-4-1917 . . . . .	Dartmouth line to Fall River line . . . . .	Northwesterly . . . . .	4.670	4.670	54,966 34
West Springfield . . . . .	1912-6-5-1895-6 . . . . .	Westfield line . . . . .	Easterly . . . . .	2.704	2.704	34,688 22
West Tisbury . . . . .	1895-6-7-1904 . . . . .	Tisbury line to Chilmank line . . . . .	Southwesterly . . . . .	5.358	5.358	
Westwood . . . . .	1916-1899-1900 . . . . .	Norwood line to Dedham line . . . . .	Northerly . . . . .	1.071	1.071	
Weymouth . . . . .	1895-7-5-1913 . . . . .	Fore River Bridge . . . . .	Easterly . . . . .	1.780	1.780	
Weymouth . . . . .	1915 . . . . .	Hingham line . . . . .	Northwesterly . . . . .	2.150	2.150	
Weymouth . . . . .	1910-8-7-4-3 . . . . .	Abington line . . . . .	Northerly . . . . .	4.937	4.937	
Weymouth . . . . .	1894 . . . . .	Holbrook line to Abington line . . . . .	Southwesterly . . . . .	2.248	2.248	
Whately . . . . .	1906-5-13-5-4-3-2-1-1899 . . . . .	Hatfield line to Deerfield line . . . . .	Northerly . . . . .	4.026	4.026	
Whitman . . . . .	1894-5-6 . . . . .	Brookton line . . . . .	Easterly . . . . .	1.697	1.697	
Whitman . . . . .	1913-14 . . . . .	East Bridgewater line to Abington line . . . . .	Northerly . . . . .	2.293	2.293	
Wilbraham . . . . .	1901-1897-6-5-1901-3-13-3-4 . . . . .	Springfield line to Palmer line . . . . .	Easterly . . . . .	5.055	5.055	
Williamsburg . . . . .	1896-8-1901-3-16-3 . . . . .	Goshen line . . . . .	Southwesterly . . . . .	2.680	2.680	

	1895-6-8-1903-1898		North Adams line		Northwesterly	1,465
Williamstown	1917		Vermont line		Southeasterly	1,197
Williamstown	1907		Williamstown Village		Southerly	.133
Williamstown	1921		Two bridges and approaches on the New			72,998 16
			Ashford Road			
Williamstown	1921		Near Williamstown Village		Northerly	.107
Wilmington	1907-8-10-11		Tewksbury line to Woburn line		Southerly	5,710
Winchendon	1921-7		Templeton line <sup>2</sup>		Southeasterly	3,678
Winchendon	1907		Winchendon Springs		Northeasterly	4,383
Winchendon	1916		Ashburnham line		Westerly (Maple Street)	3,352
Winchendon	1919		New Hampshire line		Northwesterly	1,347
Winchester	1900-1899		Woburn line to Arlington line		Southeasterly	3,164
Windsor	1897-1902-3-13-15-6-7-19		Cummington line to Dalton line		Southerly	2,493
Woburn	1915-16-17		Lexington line		Westerly	1,952
Woburn	1900-1-2		Winchester line to Burlington line		Northeasterly	8,466
Woburn	1912-13		Wilmington line		Northwesterly	2,471
Woburn	1920		Reading line		Northeasterly	2,033
Worcester	1890-7		Paxton line		Southerly	.982
Worcester	1897-1903		Holden line		Southerly	1,552
Worcester	1900-5		West Boylston line		Easterly	1,356
Wrentham	1912-13		Franklin line		Southerly	1,500
Wrentham	1915		Boxborough line		Southerly	1,216
Wrentham	1897-8-1902-14-1-1900-1899		Norfolk line to Plainville line		Easterly	2,040
Yarmouth	1894-5-6		Dennis line to Barnstable line		Southeasterly	2,549
Yarmouth	1895-6-7		Barnstable line to Dennis line		Westerly (North Road)	4,927
					Easterly (South Road)	3,716
						5,082
						1,371,608
						\$17,039,356 67

<sup>1</sup> The years indicated show the relative positions of various work done to carry out that described in columns 3 and 4.

<sup>2</sup> Exclusive of 190 foot gap at railroad crossing.

## CONTRACT PRICES ON STATE HIGHWAY

TOWN OR CITY.	Contractor.	EXCAVATION.			Plain Concrete Masonry (Cubic Yard).	BITUMINOUS SURFACING.			Concrete Surfacing (Cubic Yard).
		Earth (Cubic Yard).	Borrow (Cubic Yard).	Ledge (Cubic Yard).		Bituminous Concrete (Ton).	Asphalt (Gallon).	Tar (Gallon).	
Acton Bridge . . .	B. E. Savage . . .	-	-	\$4 00	-	-	\$0 50	-	-
Agawam . . .	Hassam Paving Company	\$1 20	\$1 35	6 00	\$25 00	-	17	-	-
Andover . . .	James H. Fannon . . .	-	-	4 00	25 00	-	18	-	-
Ashby . . .	Lane Construction Corporation.	1 50	-	4 00	30 00	-	23	-	-
Ashfield . . .	A. Palladino . . .	1 00	1 00	2 00	12 00	-	-	-	-
Ashland Bridge . . .	Perini & Sons . . .	1 50	1 75	-	-	-	-	-	-
Barre-Oakham . . .	Canton Engineering Company.	1 20	1 25	4 00	22 00	-	17	-	-
Bernardston . . .	Lane Construction Corporation.	1 25	-	3 00	25 00	-	16	-	-
Boston . . .	J. C. Coleman . . .	60	-	5 00	15 00	-	20	-	-
Brookfield-West Brookfield.	Middlesex Construction Company.	1 30	1 50	4 00	20 00	-	-	-	\$13 25
Burlington . . .	Sweeney Construction Company.	90	1 25	7 00	10 00	-	09	-	-
Canton . . .	A. J. Mitchell . . .	1 50	-	5 00	22 50	-	17	-	-
Clinton . . .	Fred E. Ellis . . .	1 35	1 35	6 00	-	-	\$0 24	-	-
Danvers . . .	William A. Jones . . .	1 15	-	2 50	-	-	19	-	-
Danvers-Topsfield . . .	T. J. McCue . . .	1 25	1 00	4 00	14 00	-	15½	-	-
Dracut . . .	Hanscom Construction Company.	1 40	1 40	3 00	30 00	-	19	-	-
East Bridgewater . . .	J. A. Houle . . .	-	-	-	-	-	-	-	-
East Brookfield . . .	Carlo Bianchi & Co. . .	2 25	2 25	-	25 00	-	-	-	15 50
East Brookfield-Spencer	Hinman & Rudiger . . .	2 00	-	5 00	30 00	-	-	35	-
Egremont . . .	D. S. McGrath, Inc. . .	1 00	1 25	3 00	17 00	-	19	-	-
Framingham . . .	A. Luchini & Son . . .	1 15	-	3 00	25 00	-	16	-	-
Gill . . .	A. Pallato . . .	1 00	1 00	2 50	20 00	-	-	-	-
Hardwick . . .	Lane Construction Corporation.	1 00	-	5 00	20 00	-	-	17	-
Hingham . . .	W. H. Connor & Sons Company.	1 00	1 00	5 00	-	-	-	-	-
Holbrook . . .	Powers Brothers . . .	1 25	1 25	2 50	16 00	-	16	-	-
Holden . . .	G. E. Greenough . . .	1 20	-	2 00	15 00	-	16	-	-
Lanesborough-New Ashford-Williamstown.	Rendle-Stoddard . . .	-	1 25	6 00	-	-	-	-	-
Leicester . . .	C. E. Horne . . .	1 50	-	6 00	25 00	-	-	-	14 50
Littleton . . .	T. J. McCue . . .	1 40	90	4 50	18 00	-	14½	-	-
Littleton . . .	T. J. McCue . . .	1 50	-	4 00	20 00	-	15½	-	-
Lynnfield . . .	Hanscom Construction Company.	95	-	5 00	20 00	-	15	-	-
Marblehead-Swampscott.	McDonough . . .	1 25	-	2 00	-	-	17	-	-



## CONSTRUCTION IN 1921.

BROKEN STONE.		PIPE CULVERTS (LINEAL FOOT).							Fencing (Lineal Foot).	Stone Filling (Cubic Yard).	Bounds (Each).	Catch Basins (Each).	Reinforced Concrete Masonry (Cubic Yard).	Gravel Borrow (Cubic Yard).
Local (Ton).	Trap (Ton).	CLAY.			CORRUGATED IRON.									
		Ten-inch.	Twelve-inch.	Fifteen-inch.	Twelve-inch.	Fourteen-inch.	Sixteen-inch.	Eighteen-inch.						
-	-	-	-	-	-	-	-	-	-	-	-	-	\$39 00	\$2 00
\$2 70	-	-	-	-	\$1 50	-	-	-	-	-	-	\$90 00	30 00	1 20
-	\$3 90	-	\$1 75	-	4 00	-	-	-	-	-	-	-	-	1 50
-	5 30	-	-	-	2 00	-	\$2 50	\$3 00	\$0 90	\$2 25	\$5 00	-	35 00	2 00
-	-	-	-	-	2 00	-	-	2 50	-	1 75	-	-	20 00	-
-	-	-	-	-	-	-	-	-	75	-	-	-	35 00	-
-	3 70	-	1 25	-	3 25	-	-	7 00	65	2 75	4 00	-	30 00	1 50
-	3 50	\$1 75	2 00	-	-	-	-	-	-	3 00	3 00	100 00	30 00	1 25
2 25	-	-	90	\$1 50	-	-	-	-	-	-	5 00	30 00	-	1 20
-	-	-	-	-	4 00	-	-	-	70	-	5 00	-	35 00	1 20
-	-	-	2 00	-	-	-	-	-	1 50	-	-	-	-	1 50
-	-	95	1 15	1 50	-	-	-	-	-	2 75	-	70 00	-	1 75
4 20	5 35	1 50	2 00	-	-	-	-	-	75	-	-	75 00	-	1 35
2 95	-	-	1 65	1 95	-	-	-	-	-	-	-	75 00	-	1 20
-	2 50	1 50	2 00	2 50	-	-	-	3 25	40	-	5 00	65 00	17 00	90
3 25	-	-	1 75	-	-	-	-	-	80	-	-	-	-	1 80
-	-	-	-	-	-	-	-	-	1 00	-	-	-	18 55	1 15
-	-	-	2 75	-	-	-	-	-	1 00	-	-	-	-	-
-	5 00	-	-	-	-	-	-	-	1 20	3 75	-	-	40 00	2 50
-	4 25	1 25	1 50	-	2 00	-	-	2 50	75	2 40	4 00	50 00	20 00	1 10
3 80	-	-	2 00	-	-	-	-	-	-	-	-	80 00	-	1 35
-	-	-	-	-	2 50	-	-	3 50	50	1 60	-	-	25 00	1 30
-	-	1 60	1 75	-	4 00	-	5 00	-	75	2 15	-	-	-	1 25
-	-	-	-	-	-	-	-	-	-	-	-	-	-	1 50
2 60	-	1 50	-	-	-	-	-	-	70	-	-	65 00	20 00	1 25
2 50	-	-	-	-	1 50	-	-	1 75	-	2 20	-	75 00	20 00	1 20
-	-	-	-	-	-	-	-	-	1 00	-	-	-	23 00	2 50
4 00	-	-	1 50	-	4 00	-	-	-	-	2 00	5 00	-	35 00	2 00
2 20	3 40	-	-	-	-	-	-	-	65	-	4 00	-	22 00	1 15
2 60	3 50	-	1 50	-	4 00	-	-	6 20	65	-	4 00	75 00	23 00	1 25
2 60	-	-	1 35	1 60	-	-	-	-	70	-	3 00	75 00	25 00	1 15
-	-	-	-	-	-	-	-	-	-	-	-	100 00	-	1 60

## CONTRACT PRICES ON STATE HIGHWAY

TOWN OR CITY.	Contractor.	EXCAVATION.			Plain Concrete Masonry (Cubic Yard).	BITUMINOUS SURFACING.			Concrete Surfacing (Cubic Yard).
		Earth (Cubic Yard).	Borrow (Cubic Yard).	Ledge (Cubic Yard).		Bituminous Con- crete (Ton).	Asphalt (Gallon).	Tar (Gallon).	
Mendon-Uxbridge .	J. H. Fannon . . .	\$1 25	-	\$6 00	\$25 00	-	-	\$0 18	\$13 00
Middlefield-Peru .	C. Bianchi & Co. . .	95	\$1 00	2 00	20 00	-	-	-	-
Middleton-Danvers .	F. E. Ellis . . .	1 15	-	3 00	25 00	-	\$0 17	-	-
Millbury . . .	Carlo Bianchi & Co. . .	1 15	-	5 00	20 00	-	-	-	12 50
Monterey . . .	Hoyt Construction Com- pany.	1 10	1 00	7 00	20 00	-	-	-	-
North Adams . . .	F. T. Ley & Co. . .	1 25	-	5 00	15 00	-	-	-	10 80
Norton . . .	Z. L. Canedy . . .	1 25	1 80	5 00	20 00	-	22	-	-
Norwell . . .	J. W. O'Connell . . .	1 50	1 25	-	-	-	16	-	-
Oxford . . .	D'Onfro Brothers . . .	90	2 00	5 00	20 00	-	-	-	-
Palmer . . .	W. C. Tannatt, Jr. . .	1 50	1 80	4 00	30 00	-	-	-	15 33
Pembroke . . .	Atwood Thomas Company	90	1 25	4 50	20 00	\$7 00	-	-	-
Plainfield-Cummington	Geo. T. Seabury, Inc. . .	1 00	90	3 00	20 00	-	-	-	-
Plympton . . .	M. F. Roach . . .	90	-	4 50	18 00	7 45	-	-	-
Quincy . . .	A. G. Tomasello . . .	1 35	-	5 00	20 00	-	-	-	14 00
Rutland . . .	A. Palladino . . .	1 20	-	5 00	15 00	-	-	-	-
Seekonk . . .	Germain & Staples . . .	1 10	-	10 00	-	-	16	-	-
Sterling . . .	Geo. E. Greenough . . .	1 50	-	-	15 00	-	-	-	-
Stoughton . . .	Carlo Bianchi & Co. . .	1 50	-	6 00	25 00	-	20	-	12 00
Stoughton . . .	Cavanaugh Brothers . . .	1 00	-	6 00	-	-	17	-	-
Upton . . .	R. H. Newell . . .	1 20	1 50	8 50	30 00	-	-	-	-
Waltham . . .	S. O. Hoyt . . .	1 15	-	5 00	20 00	-	17	-	-
Washington . . .	Luigi Carchia Company . . .	2 00	-	6 00	30 00	-	25	-	-
Watertown . . .	T. J. McCue . . .	1 45	-	5 00	-	-	16	-	-
Westborough . . .	G. E. Greenough . . .	1 20	-	2 00	25 00	-	-	25	-
West Bridgewater . . .	M. F. Roach . . .	1 10	-	-	20 00	9 00	-	-	-
West Springfield . . .	Hoyt Construction Com- pany.	1 35	-	-	15 00	-	-	18½	10 75
Winchendon-Templeton	Lane Construction Cor- poration.	1 10	1 00	3 00	20 00	-	-	14	-
Winchester-Woburn . . .	Powers Brothers . . .	1 10	-	2 50	20 00	-	15½	-	-
Woburn . . .	B. E. Savage . . .	-	-	-	25 00	-	-	-	-
Wrentham . . .	Canedy Construction Com- pany.	1 00	-	4 00	12 50	-	16½	-	-

CONSTRUCTION IN 1921 — *Concluded.*

BROKEN STONE.		PIPE CULVERTS (LINEAL FOOT).							Fencing (Lineal Foot).	Stone Filling (Cubic Yard).	Bounds (Each).	Catch Basins (Each).	Reinforced Concrete Masonry (Cubic Yard).	Gravel Borrow (Cubic Yard).
Local (Ton).	Trap (Ton).	CLAY.			CORRUGATED IRON.									
		Ten-inch.	Twelve-inch.	Fifteen-inch.	Twelve-inch.	Fourteen-inch.	Sixteen-inch.	Eighteen-inch.						
-	\$3 25	\$1 50	-	-	\$4 00	-	\$6 50	\$8 00	\$0 80	\$3 00	\$3 00	\$100 00	\$30 00	\$1 50
-	-	-	-	-	2 00	-	-	3 00	-	1 95	-	-	25 00	2 00
-	2 90	-	\$1 70	-	-	-	-	-	80	-	5 00	75 00	36 00	1 20
-	-	1 25	1 50	\$1 80	-	-	-	-	65	-	-	125 00	-	1 25
-	-	-	-	-	2 70	-	-	3 25	-	2 15	-	-	25 00	1 15
-	-	-	-	-	3 20	-	4 90	5 85	90	-	-	-	18 00	1 05
-	5 00	-	-	-	3 25	\$3 50	-	-	75	-	-	75 00	30 00	2 00
\$3 25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	75	3 00	5 00	-	30 00	1 50
-	-	-	-	-	-	-	-	-	75	6 00	-	-	40 00	1 80
3 25	-	-	1 45	1 85	-	-	-	-	65	-	-	70 00	-	-
-	-	-	1 90	2 15	2 00	-	2 40	2 65	-	1 75	-	-	-	90
-	-	-	-	-	1 60	-	-	-	60	-	-	-	-	1 40
-	-	-	-	-	-	-	-	-	75	-	5 00	75 00	30 00	1 50
-	-	-	-	-	2 00	-	-	3 00	-	2 50	-	-	-	1 30
3 20	-	-	-	-	-	-	-	-	-	-	-	65 00	-	1 75
-	-	-	-	-	2 00	-	-	-	-	2 50	5 00	-	-	1 20
3 75	-	-	-	-	-	-	-	-	75	-	-	100 00	30 00	1 20
2 50	3 90	1 10	1 45	1 60	-	-	-	-	-	-	-	80 00	-	1 10
2 90	-	2 00	2 20	-	-	-	-	-	1 00	-	2 50	90 00	35 00	-
-	3 80	-	2 30	2 90	-	-	-	-	75	2 50	5 00	68 80	25 00	1 75
3 50	4 00	-	-	-	2 25	-	2 60	3 00	60	3 50	5 00	-	40 00	3 00
-	3 10	-	-	-	-	-	-	-	-	-	-	85 00	-	1 30
-	5 00	2 00	2 00	-	-	-	-	-	80	2 50	-	100 00	35 00	2 00
3 25	-	-	1 50	-	-	-	-	-	-	-	-	70 00	-	-
3 25	-	-	1 75	-	1 50	-	-	-	75	-	-	75 00	-	1 50
-	3 75	-	1 75	-	4 00	-	5 00	-	75	3 75	4 00	100 00	35 00	1 50
-	2 85	-	1 60	2 15	5 00	-	-	-	85	-	-	75 00	30 00	1 25
-	-	-	-	-	-	-	-	-	-	-	-	-	24 00	2 00
-	-	1 75	2 00	-	-	-	-	-	75	-	-	60 00	-	1 15

## CARE OF SHADE TREES ON STATE HIGHWAYS.

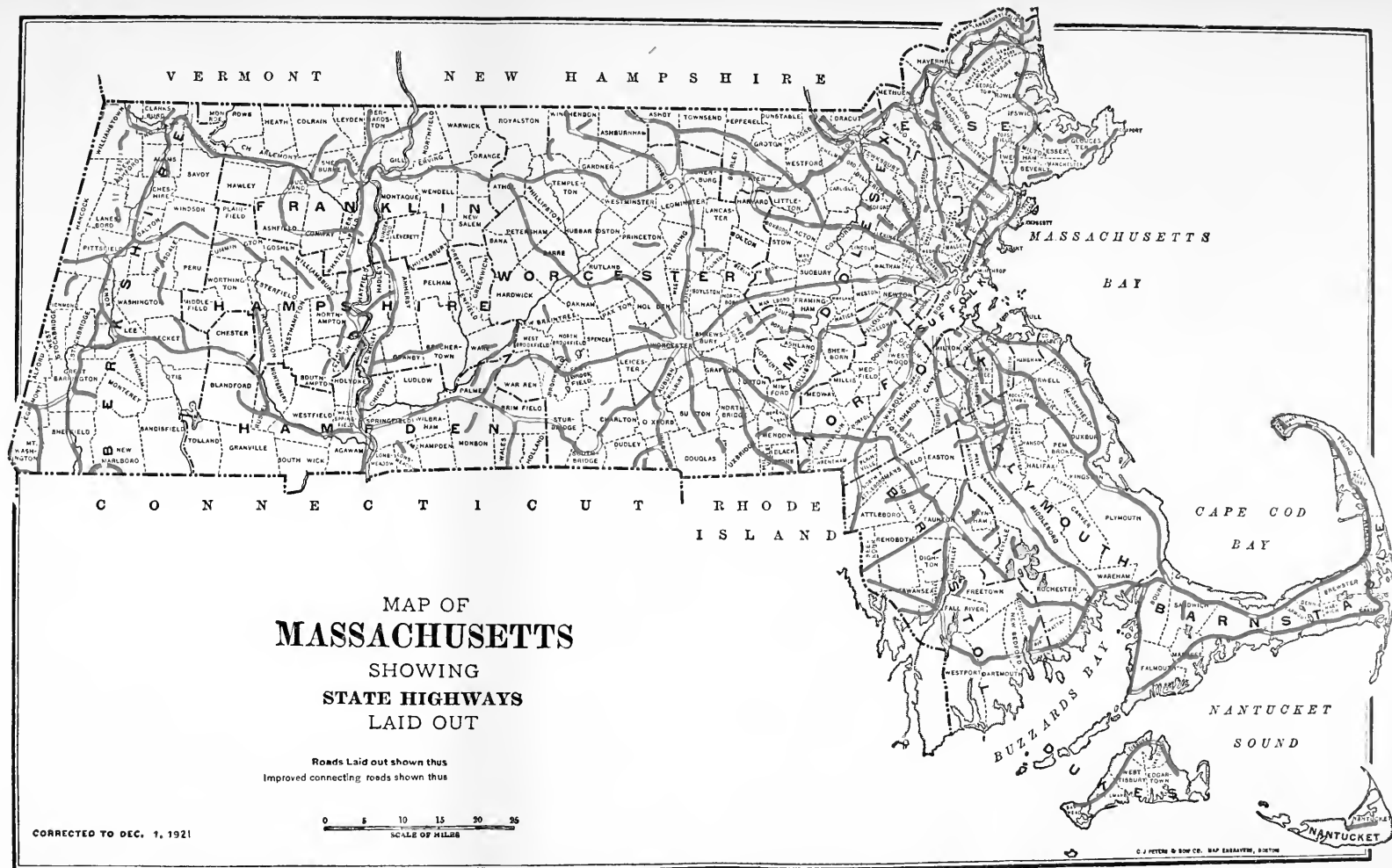
*List of Towns and Cities in which Work has been done by the State Forester's Department in cleaning and spraying Trees on State Highways for suppressing Gypsy and Brown-tail Moths and Elm-leaf Beetles, and the Amount expended in Each Municipality during the year.*

TOWN.	Amount.	TOWN.	Amount.
Abington . . . . .	\$75 81	Duxbury . . . . .	\$165 11
Acton . . . . .	181 81	East Bridgewater . . . . .	67 34
Amesbury . . . . .	56 28	Eastham . . . . .	35 20
Andover . . . . .	110 10	Essex . . . . .	24 39
Ashby . . . . .	128 67	Falmouth . . . . .	544 59
Ashburnham . . . . .	123 60	Fitchburg . . . . .	90 70
Ashland . . . . .	70 45	Foxborough . . . . .	77 10
Attleboro . . . . .	55 00	Framingham . . . . .	194 96
Avon . . . . .	11 50	Franklin . . . . .	55 00
Ayer . . . . .	77 53	Freetown . . . . .	101 00
Barnstable . . . . .	306 82	Gloucester . . . . .	51 89
Bedford . . . . .	66 90	Grafton . . . . .	85 75
Bellingham . . . . .	27 50	Groton . . . . .	77 61
Berkley . . . . .	55 00	Groveland . . . . .	66 52
Beverly . . . . .	118 73	Hamilton . . . . .	94 89
Billerica . . . . .	98 75	Hanover . . . . .	110 00
Blackstone . . . . .	13 88	Harvard . . . . .	60 30
Bourne . . . . .	253 13	Harwich . . . . .	106 40
Boxborough . . . . .	114 08	Haverhill . . . . .	201 75
Braintree . . . . .	226 56	Hingham . . . . .	59 74
Brewster . . . . .	67 55	Holbrook . . . . .	78 00
Bridgewater . . . . .	96 98	Holliston . . . . .	104 06
Burlington . . . . .	93 26	Hudson . . . . .	34 47
Canton . . . . .	110 00	Ipswich . . . . .	114 86
Chatham . . . . .	37 95	Kingston . . . . .	78 11
Chelmsford . . . . .	129 80	Lakeville . . . . .	155 81
Cobasset . . . . .	75 02	Lancaster . . . . .	22 00
Concord . . . . .	149 31	Leominster . . . . .	62 40
Danvers . . . . .	37 18	Lexington . . . . .	123 80
Dedham . . . . .	52 00	Lincoln . . . . .	78 57
Dennis . . . . .	75 00	Littleton . . . . .	97 23
Dighton . . . . .	156 00	Lowell . . . . .	89 67
Dover . . . . .	124 35	Lunenburg . . . . .	98 56
Dracut . . . . .	114 90	Mansfield . . . . .	55 00

*List of Towns and Cities in which Work, etc. — Concluded.*

TOWN.	Amount.	TOWN.	Amount.
Marlborough . . . . .	\$131 10	Seekonk . . . . .	\$92 00
Marshfield . . . . .	76 69	Shirley . . . . .	57 00
Mashpee . . . . .	150 00	Shrewsbury . . . . .	40 80
Melrose . . . . .	45 98	Somerset . . . . .	184 00
Merrimac . . . . .	38 95	Southborough . . . . .	98 08
Methuen . . . . .	122 00	Sterling . . . . .	105 00
Middleborough . . . . .	202 89	Stoneham . . . . .	90 75
Middleton . . . . .	22 60	Stoughton . . . . .	180 00
Millville . . . . .	13 86	Sudbury . . . . .	117 16
Milton . . . . .	11 50	Swansea . . . . .	202 00
Natick . . . . .	98 62	Taunton . . . . .	110 00
Needham . . . . .	79 46	Templeton . . . . .	20 12
Newbury . . . . .	74 96	Tewksbury . . . . .	116 70
Newburyport . . . . .	37 40	Townsend . . . . .	152 94
Norfolk . . . . .	37 20	Truro . . . . .	111 00
North Andover . . . . .	164 75	Tyngsborough . . . . .	154 00
North Attleborough . . . . .	101 00	Uxbridge . . . . .	13 86
Northborough . . . . .	173 22	Walpole . . . . .	174 00
North Reading . . . . .	83 00	Wareham . . . . .	220 28
Norton . . . . .	172 80	Wayland . . . . .	112 41
Norwell . . . . .	48 20	Wellfleet . . . . .	25 05
Norwood . . . . .	95 10	Wenham . . . . .	113 82
Orleans . . . . .	98 92	Westborough . . . . .	75 51
Pembroke . . . . .	218 05	West Boylston . . . . .	65 70
Pepperell . . . . .	89 74	West Bridgewater . . . . .	56 86
Plainville . . . . .	46 00	Westford . . . . .	158 40
Plymouth . . . . .	402 64	Westminster . . . . .	74 49
Princeton . . . . .	12 50	West Newbury . . . . .	116 70
Randolph . . . . .	101 00	Weston . . . . .	110 72
Raynham . . . . .	55 00	Westwood . . . . .	27 50
Reading . . . . .	129 50	Weymouth . . . . .	153 60
Rehoboth . . . . .	184 00	Wilmington . . . . .	68 93
Rochester . . . . .	39 54	Winchendon . . . . .	44 50
Rockland . . . . .	14 89	Winchester . . . . .	78 60
Rockport . . . . .	13 18	Woburn . . . . .	233 90
Rowley . . . . .	106 35	Wrentham . . . . .	202 00
Salisbury . . . . .	170 65	Yarmouth . . . . .	121 30
Sandwich . . . . .	222 76	Total . . . . .	\$15,000 00
Scituate . . . . .	80 14		









---

---

REGISTRY OF MOTOR VEHICLES

---

---



## REGISTRY OF MOTOR VEHICLES.

### MOTOR VEHICLE DEATHS, INJURIES, COLLISIONS.

During the year 1921 the campaign inaugurated early in 1920 to reduce accidents and make the highways of the Commonwealth safer for all who use them was carried on with unabated vigor both by the police throughout the Commonwealth and the Department. The result attained was striking, particularly with reference to the reduction in the number of persons injured.

In 1919 there were 16,287 persons injured, in 1920 there were 21,182 injured, while in 1921 there were only 11,487 persons injured, notwithstanding the fact that there were 111,909 more automobiles on the highways of the Commonwealth than in 1919, and 53,016 more than there were in 1920.

The principal reason for this great reduction was without question the new regulation put into effect by the registrar on Dec. 1, 1920, making it necessary for every one to pass an examination before an original license was issued to him.

A close study of the following tables will indicate the great improvement that has taken place on the highways during the past two years:—

### NUMBER OF PERSONS KILLED AND INJURED.

	KILLED.		INJURED.	
	1920.	1921.	1920.	1921.
Pedestrians, by autos . . . .	314	339	7,664	6,484
Pedestrians, by motor cycles . . . .	2	2	67	40
Occupants of autos . . . . .	114	159	11,055	3,744
Motor cycle riders . . . . .	28	28	870	424
Bicycle riders . . . . .	12	14	868	594
Occupants of carriages . . . . .	1	—	344	173
Persons near street cars . . . . .	10	2	218	28
Totals . . . . .	481	544	21,086	11,487

## CHILDREN KILLED AND INJURED IN 1920 AND 1921.

	1920.	1921.
Killed:		
Boys . . . . .	190	139
Girls . . . . .		57
Injured:		
Boys . . . . .	2,101	2,446
Girls . . . . .		987

## NUMBER OF COLLISIONS.

	1920.	1921.
Autos v. pedestrians . . . . .	7,049	6,895
Autos v. autos . . . . .	12,297	12,508
Autos v. carriages . . . . .	639	743
Autos v. bicycles . . . . .	850	793
Autos v. trolley cars . . . . .	790	783
Autos v. poles, etc. . . . .	1,338	1,631
Autos v. trains . . . . .	39	64
Autos v. motorcycles . . . . .	396	725
Motor cycles v. pedestrians . . . . .	69	59
Totals . . . . .	23,467	24,201
In the daytime . . . . .	19,105	18,616
After dark . . . . .	4,362	5,585
Totals . . . . .	23,467	24,201

NUMBER OF SUSPENSIONS AND REVOCATIONS FOR 1920  
AND 1921.

The statements following show the action taken by the registrar, and the causes therefor:—

## ANALYSIS OF SUSPENSIONS AND REVOCATIONS.

	1920.	1921.
Licenses suspended . . . . .	1,270	1,940
Licenses revoked . . . . .	1,172	1,119
Rights suspended . . . . .	349	629
Registration certificates suspended . . . . .	82	75
Registration certificates revoked . . . . .	67	565
Registration certificates and licenses suspended . . . . .	—	36
Registration certificates and licenses revoked . . . . .	—	483
Registration certificates revoked and rights suspended . . . . .	—	47
Rights to have car operated in Massachusetts suspended . . . . .	—	5
Registration certificates canceled . . . . .	2	—
Licenses canceled . . . . .	2	—
Totals . . . . .	2,944	4,899
Resulting from investigations . . . . .	1,242	2,340
Resulting from court convictions . . . . .	1,694	2,452
Resulting from formal complaints . . . . .	8	1
Resulting from police complaints . . . . .	—	106
Totals . . . . .	2,944	4,899

## NUMBER OF SUSPENSIONS AND REVOCATIONS, FISCAL YEARS 1920 AND 1921.

DATE.	1920.			DATE.	1921.		
	Liquor.	Other Causes.	Total.		Liquor.	Other Causes.	Total.
1919.				1920.			
December . . . . .	42	80	122	December . . . . .	103	229	332
1920.				1921.			
January . . . . .	28	84	112	January . . . . .	56	142	198
February . . . . .	12	32	44	February . . . . .	40	95	135
March . . . . .	9	31	40	March . . . . .	75	140	215
April . . . . .	31	58	89	April . . . . .	94	161	255
May . . . . .	46	104	150	May . . . . .	101	165	266
June . . . . .	69	208	277	June . . . . .	129	319	448
July . . . . .	100	237	337	July . . . . .	147	367	514
August . . . . .	119	231	350	August . . . . .	176	375	551
September . . . . .	134	290	424	September . . . . .	153	476	629
October . . . . .	132	317	449	October . . . . .	193	584	777
November . . . . .	166	384	550	November . . . . .	145	434	579
Totals . . . . .	888	2,056	2,944	Totals . . . . .	1,412	3,487	4,899

NUMBER OF SUSPENSIONS AND REVOCATIONS ACCORDING TO NATURE OF OFFENCES.

	1920.	1921.
Liquor cases . . . . .	888	1,412
Improper person (liquor) . . . . .	-	96
Improper operating . . . . .	323	706
Improper person . . . . .	449	541
Death cases . . . . .	411	516
Reckless and endangering lives . . . . .	406	438
Improper equipment . . . . .	-	367
Overspeeding twice . . . . .	105	272
Overspeeding three times . . . . .	11	23
Taking car without authority . . . . .	70	172
Going away after accident . . . . .	96	124
For several violations . . . . .	-	14
Miscellaneous offences . . . . .	185	218
Totals . . . . .	2,944	4,899

COMPARATIVE STATEMENT OF REGISTRATIONS, DEATHS, ACCIDENTS, SUSPENSIONS, ETC.

YEAR.	Autos registered.	Motor cycles registered.	Total Registrations.	Number of Persons killed.	Number of Persons injured.	Ratio of Deaths to Registrations.	Ratio of Injuries to Registrations.	Licenses suspended.	Licenses revoked.	Rights suspended.
1908 . . . . .	18,066	1,922	19,988	13	486	.00065	.02431	51	44	-
1909 . . . . .	23,971	2,394	26,365	54	989	.00205	.03751	132	68	-
1910 . . . . .	31,360	3,358	34,718	77	963	.00222	.02774	198	90	-
1911 . . . . .	38,907	3,658	42,565	110	1,248	.00258	.02932	254	95	-
1912 . . . . .	50,132	5,034	55,166	142	1,962	.00257	.03557	325	190	-
1913 . . . . .	62,660	7,127	69,787	188	2,923	.00269	.04188	365	198	-
1914 . . . . .	77,246	8,161	85,407	229	4,010	.00268	.04695	521	231	34
1915 . . . . .	102,633	9,520	112,153	294	6,197	.00262	.05525	615	303	181
1916 . . . . .	136,809	10,713	147,522	315	9,131	.00214	.06190	641	514	232
1917 . . . . .	174,274	11,065	185,339	438	7,282	.00236	.03929	794	717	300
1918 . . . . .	193,497	12,862	206,359	499	8,598	.00242	.04166	957	811	398
1919 . . . . .	247,183	13,698	260,881	582	16,287	.00223	.06243	1,013	856	264
1920 . . . . .	304,631	15,143	319,774	481	21,182	.00150	.06624	1,270	1,172	346
1921 . . . . .	360,732	12,058	372,790	544	11,487	.00145	.03081	1,940	1,119	629

The preceding statement shows that the number of motor vehicles has increased greatly since the period covered by the preceding report. On the other hand, the number of persons killed and the number of persons injured shows in the year 1921 very little increase over the year 1918, the figures for persons killed being 544 as against 499 in 1918, and the number of persons injured being 11,487 as against 8,598 in 1918. In the year 1919, however, the number of persons killed reached the number of 582, and in 1920 the number of persons injured reached the very alarming figure of 21,182. It is probable that the decrease noted has been due in part to better police protection and in no small measure to the activity of the registrar with regard to the suspension and revocation of licenses and rights. A year or two more of experience should show whether a further improvement will be realized.

The statement also indicates the ratio of the number of persons killed and injured to the number of motor vehicles registered. These figures indicate a great proportional improvement in the situation, the ratio of persons killed to the total number of motor vehicles registered having shrunk to .00145, the smallest figure since 1908, and the ratio of persons injured to the total number of motor vehicles registered having shrunk to .03081, the smallest figure since 1911. These tables indicate a very gratifying progress in dealing with a most dangerous situation during the past few years.

The following table gives a classification of those killed and injured for the years 1914 to 1921, inclusive, and shows that the greater proportion of the reduction in injuries has been in the case of occupants of automobiles. While satisfactory progress has been made, the number of casualties remains extremely large.

	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
<i>Killed.</i>								
Pedestrians . . . . .	150	188	219	260	304	379	313	339
Occupants of automobiles . . .	56	84	68	128	136	160	114	160
Motor cycle riders . . . . .	18	15	15	33	28	25	28	29
Bicycle riders . . . . .	3	3	7	11	19	17	12	14
Occupants of carriages . . . . .	2	4	5	5	4	1	1	-
Street car passengers . . . . .	-	-	1	1	8	-	10	2
<i>Injured.</i>								
Pedestrians . . . . .	2,303	3,110	4,710	4,001	3,871	5,719	7,731	6,524
Occupants of automobiles . . .	879	1,521	2,363	1,831	3,560	8,712	11,055	3,744
Motor cycle riders . . . . .	337	636	895	682	504	677	870	424
Bicycle riders . . . . .	256	497	613	524	428	622	868	594
Occupants of carriages . . . . .	217	421	521	223	192	541	344	173
Street car passengers . . . . .	18	12	29	21	43	10	218	28

#### CONFERENCE OF MOTOR VEHICLE ADMINISTRATORS.

On Sept. 23, 1921, representatives having charge of motor vehicle laws and registrations, etc., in the following States met at the invitation of the Tax Commission of the State of New York, in New York, to consider the question of guiding future legislation and administration of the motor vehicle laws so as to procure uniformity and reciprocity: Connecticut, Maryland, Massachusetts, New Jersey, New York, Pennsylvania and Rhode Island.

As a result of this meeting a permanent organization was effected, and the organization was named Conference of Motor Vehicle Administrators. The first meeting of the conference was held at New Jersey on Nov. 18, 1921. It is hoped that as a result of this conference it may be possible to get better reciprocal relations with the New England and other eastern States, so that motorists, having complied with the law in their own State, may travel for pleasure into other States without having to go through difficulties with the police and motor vehicle authorities. The conference will probably give first consideration to the non-resident laws and also to the headlight regulations.



## INVESTIGATIONS AND PROSECUTIONS BY INSPECTORS.

The following table furnishes a classification and summary of the work of the inspectors other than examination work, together with comparative figures for the preceding year: —

	1920.	1921.
Total reports received from inspectors . . . . .	1,522	3,360
Itemized as follows:		
Accidents, fatal . . . . .	480	554
Accidents, non-fatal . . . . .	316	385
Accidents, brief reports . . . . .	230	243
General reputation . . . . .	223	521
Miscellaneous . . . . .	273	1,657
Totals . . . . .	1,522	3,360
Prosecutions (all offences) . . . . .	76	221
Fines imposed . . . . .	\$1,993	\$5,845

## COMPARISON OF ABSTRACTS OF COURT RECORDS, FISCAL YEARS 1920 AND 1921.

	1920.	1921.
Number of courts that have forwarded abstracts . . . . .	94	94
Number of abstracts received . . . . .	29,056	30,714
<i>Disposition of Cases.</i>		
Persons guilty of operating unlawfully . . . . .	19,086	21,687
Persons not guilty of operating unlawfully . . . . .	704	991
Cases appealed to a higher court . . . . .	1,093	1,391
Complaints placed on file . . . . .	5,710	7,140
Complaints nol-prossed . . . . .	182	737
Probation . . . . .	332	365
Persons committed to imprisonment . . . . .	331	503
Defendants defaulted . . . . .	46	26

COMPARISON OF ABSTRACTS OF COURT RECORDS, FISCAL YEARS 1920  
AND 1921 — *Concluded.*

	1920.	1921.
<i>Offences.</i>		
For overspeeding . . . . .	6,593	7,247
For reckless operating . . . . .	192	268
For operating while intoxicated . . . . .	992	1,821
For using automobile without authority . . . . .	164	286
For endangering lives and safety of the public . . . . .	419	610
For failing to stop after causing injury . . . . .	156	266
For operating without a license . . . . .	2,321	2,746
For operating without carrying registration certificates . . . . .	1,347	1,551
For operating an unregistered motor vehicle . . . . .	406	325
For improper display or no register number . . . . .	536	409
For refusing to stop when signaled by officer . . . . .	589	531
For operating with unlighted lamps . . . . .	1,549	1,681
For failing to give signal when approaching intersecting way . . . . .	3,163	2,738
For operating with dazzling lights . . . . .	148	230
For operating within 8 feet of street car . . . . .	318	472
For violating metropolitan park rules . . . . .	423	664
For miscellaneous offences . . . . .	2,612	2,576
For operating after license suspended or revoked . . . . .	43	102
For larceny of motor vehicles . . . . .	53	196
For manslaughter . . . . .	34	134
Lenses not approved . . . . .	—	30

## FINES PAID, AS REPORTED BY STATE AUDITOR.

	1920.	1921.
For violations of the motor vehicle law . . . . .	\$146,453 04	\$208,173 27

## EXAMINATIONS FOR LICENSES.

Examinations of applicants for licenses to operate motor vehicles are now held in 57 cities and towns in the Commonwealth. At some of these points examinations are conducted daily, at other places weekly or fortnightly, depending on the season of the year, and as warranted by the number of applicants.

The list of examination places follows:—

Athol	Hingham	Norwood
Attleboro	Holyoke	Oak Bluffs
Ayer	Hyannis	Palmer
Boston	Ipswich	Pittsfield
Bridgewater	Lawrence	Plymouth
Brockton	Lowell	Provincetown
Cambridge	Lynn	Quincy
Clinton	Malden	Rockland
Concord	Mansfield	Salem
Fall River	Marlborough	Southbridge
Falmouth	Middleborough	Springfield
Fitchburg	Milford	Taunton
Framingham	Nantucket	Ware
Franklin	New Bedford	Wareham
Gardner	Newburyport	Webster
Gloucester	Newton (West)	Westfield
Great Barrington	North Adams	Whitinsville
Greenfield	Northampton	Woburn
Haverhill	North Brookfield	Worcester

The inspectors of this section of the Department during the fiscal year 1921 conducted 94,023 examinations of private operators and chauffeurs.

The following statement gives some indication of the work of the examiners. It should be noted that the percentage of operators who failed was 26.6 per cent, while the percentage of chauffeurs failing was only 13.3 per cent.

	1919.	1920.	1921.
Total examinations . . . . .	19,107	39,845	94,023
Chauffeurs examined . . . . .	18,882	37,444	46,506
Chauffeurs unfit . . . . .	3,499	4,510	5,485
Operators examined . . . . .	225	2,401	46,136
Operators unfit . . . . .	66	403	9,716
"Competency," passed . . . . .	—	83	137
"Competency," unfit . . . . .	—	45	23

## HEADLIGHTING.

On May 26, 1921, an act passed by the Legislature, with an emergency preamble attached, required the use on all motor vehicle headlamps of a lens or other device approved by the registrar, designed to prevent glaring rays. Under the provisions of this act, 57 lenses and devices were submitted to a laboratory test under specifications formulated by this Department. These specifications were a great improvement over those under which devices were tested in other States having similar laws, and but 33 of the 57 devices submitted were successful in complying with the requirements.

While the improvement in the specifications for laboratory test adopted by Massachusetts was in advance of any specifications previously used, it was not expected that the results would be perfection, for the solution of this problem is still in its development stages. However, with State-wide publicity and education, through the distribution of proper literature and otherwise, the results attained were so much better than those attained in other States having similar laws that the committee on motor vehicle lighting of the Illuminating Engineering Society, which is composed of the greatest experts on this subject, has recently revised its specifications along lines similar to those of the Massachusetts specifications with but a few minor improvements.

## PERSONNEL OF THE EXAMINING AND INVESTIGATING SECTION.

The personnel of this section has undergone some change, several inspectors having left the service, while thirty-three new men have been taken on. The section now consists of the chief and fifty-nine inspectors.

## USED-CAR SECTION.

This section lists the sales of used cars and also keeps an index of cars that have been reported as stolen. The number of cars reported to this office as stolen in 1921, namely, 7,390, as the total, represents cars that were stolen in different parts of the country, such as, New York, Chicago, Pennsylvania, California, etc.

The following cars stolen outside of this State have been recovered through information furnished by this office: four cars stolen in Providence, R. I., two in New York, one in Brooklyn, one in Bronx, N. Y., one in Randolph, Vt., one in Manchester, N. H., one in Springfield, Vt., one in Pennsylvania, one in Newport and one in Montreal.

The following cars stolen in Massachusetts have been recovered outside of the State through information furnished this office: one in California, one in Florida, one in Albany, N. Y., one in Stratham, N. H., one in Philadelphia, one in Quebec, one in Montpelier, Vt., one in Providence, R. I., one in Essex Jct., Vt., one in Augusta, Me., one in Swanton, Vt., and one in Jacksonville, Fla.

The following figures show somewhat the volume of work handled by the used-car section: —

	1920.	1921.
Dealers:		
Total number making reports to this office . . . . .	1,626	1,681
Total number of first-class dealers reporting . . . . .	805	1,033
Total number of second and third class dealers reporting . . . . .	821	648
Reports:		
Approximate number of individual reports received daily . . . . .	150	175
Approximate number of dealers' reports received daily . . . . .	150	250
Motor vehicles stolen:		
Number of stolen motor vehicles reported to this office . . . . .	5,000	7,390
Number of cars stolen in Boston . . . . .	480	490
Number of cars recovered through this office . . . . .	190	339
Engine numbers assigned:		
Engine numbers assigned to cars . . . . .	139	550
Letters authorizing replacing of engine numbers . . . . .	25	50

### REGISTRATIONS, LICENSES, FEES.

The registrations for 1921 showed an increase of about 20 per cent over the preceding year, with the exception of a decrease in the number of motor cycles registered, and the increase for five years is clearly shown in the following table: —

## PASSENGER CARS, COMMERCIAL VEHICLES AND MOTOR CYCLES.

	1916.	1917.	1918.	1919.	1920.	1921.	Per Cent Increase, Five Years.
Passenger cars . . .	118,615	145,801	160,486	205,372	251,570	305,471	158
Commercial cars . . .	18,194	25,505	33,011	41,810	52,968	55,261	205
Motor cycles . . .	10,713	10,956	12,862	13,698	15,142	12,048	11

The fees received for the year 1921, together with the number of vehicles registered in each classification and the number of licenses granted, etc., are shown in the following table:—

## ANALYSIS OF RECEIPTS.

## Certificates of registration:

Passenger cars . . . . .	305,471	\$2,827,854	50
Commercial cars . . . . .	55,261	788,439	50
Trailers . . . . .	472	7,419	50
Motor cycles . . . . .	12,048	56,637	00
Motor cycle dealers . . . . .	51	510	00
Manufacturers or dealers . . . . .	1,848	45,700	00
Manufacturers or dealers, additional cars . . . . .	2,848	18,384	50
Repairers . . . . .	280	2,745	00

## Licenses to operate:

Operators . . . . .	36,420 at \$2	00	72,840	00
Chauffeurs . . . . .	41,021 at 2	00	82,042	00
Operators' renewals . . . . .	211,349 at 2	00	422,698	00
Chauffeurs' renewals . . . . .	91,729 at 2	00	183,458	00

Examinations . . . . .	93,501 at 2	00	187,002	00
------------------------	-------------	----	---------	----

Copies of certificates and licenses furnished . . . . .	17,337 at 50	8,668	50
Duplicate automobile number plates . . . . .	7,552 at 75	5,664	00
Duplicate motor cycle number plates . . . . .	197 at 50	98	50
State plates furnished . . . . .	790 at 10	79	00
Lens fees . . . . .	53 at 50	2,650	00

Total . . . . .	\$4,712,890	00
Miscellaneous receipts . . . . .	920	38

Total fees . . . . .	\$4,713,810	38
Motor vehicle fees rebated (deducted) . . . . .	69,185	55

Net fees . . . . .	\$4,644,624	83
Court fines received by the Treasurer and Receiver-General . . . . .	208,173	27

Total receipts credited motor vehicle fees account . . . . .	\$4,852,798	10
--	-------------	----

The cost of running the Registry of Motor Vehicles for the year 1921 was \$542,411.09, which was 11.67 per cent of the net fees collected, as compared with 11.27 per cent for the year 1920. This cost, deducted from the receipts of the year, left available for legislative appropriation for highway work the sum of \$4,310,387.01.

The following table gives an analysis of the expenditures for running the Registry for the year 1921:—

## EXPENDITURES FOR THE FISCAL YEAR 1921.

## Personal services:

Regular pay roll . . . . .	\$288,246 86	
Overtime . . . . .	11,698 37	
	<hr/>	\$299,945 23

## Supplies:

Books, maps, etc. . . . .	\$202 70	
Typewriter supplies (including carbon, \$1,086) . . . . .	1,617 33	
Adding machine supplies . . . . .	22 38	
Duplicator machine supplies . . . . .	168 56	
Other machine supplies . . . . .	39 60	
Stationery . . . . .	9,969 59	
Guide cards, folders, etc. . . . .	1,165 64	
Typewriter repairs . . . . .	373 96	
Multigraph repairs and supplies . . . . .	347 79	
Other repairs . . . . .	273 98	
	<hr/>	14,181 53

## Equipment:

Typewriter machines . . . . .	\$849 50	
Duplicator machines . . . . .	330 00	
Other machines . . . . .	554 25	
Visible index system . . . . .	3,285 09	
	<hr/>	5,018 84

## Furniture:

Desks and chairs . . . . .	\$427 84	
Filing cabinets . . . . .	3,783 13	
Other articles as listed below:		
Electric fans . . . . .	180 53	
Partitions, etc. . . . .	559 90	
	<hr/>	4,951 40

## Traveling expenses:

Employees . . . . .	\$25,429 81	
Automobiles (owned by employees) . . . . .	34,566 45	
Other traveling expenses . . . . .	2,082 72	
	<hr/>	\$62,078 98

## Other services and expenses:

Expressage . . . . .	\$279 68	
Postage . . . . .	40,269 60	
Printing . . . . .	26,243 31	
Telephone . . . . .	343 99	
Premium on bonds of employees . . . . .	122 50	
Rent . . . . .	3,466 34	
Special services (labor) . . . . .	1,476 68	

## Other services as listed below:

Advertising . . . . .	476 96	
Badges for inspectors . . . . .	170 00	
Cleaning and towels . . . . .	651 87	
Commissions as justices of the peace . . . . .	320 00	
Headlight tests . . . . .	2,120 00	
Headlight supplies . . . . .	810 33	
Light and water fixtures . . . . .	246 14	
Number plates . . . . .	78,588 67	
Sign painting . . . . .	183 96	
Uniforms for inspectors . . . . .	360 00	
Sundries . . . . .	105 08	
	<hr/>	156,235 11

Total . . . . . \$542,411 09

The total amount appropriated or available for 1921 was \$582,826.22.

The following comparative statement for the years 1920 and 1921 shows very plainly the increase of work as occasioned by increased registrations and licenses, etc.:—



	1920.	1921.
Passenger registrations . . . . .	251,570	305,471
Highest number plate assigned . . . . .	219,717	259,655
Commercial registrations . . . . .	52,968	55,261
Highest number plate assigned . . . . .	B49,572	B55,150
Motor cycle registrations . . . . .	15,142	12,048
Highest number plate assigned . . . . .	14,508	11,393
Motor cycle dealers' registrations . . . . .	43	51
Manufacturers' or dealers' registrations . . . . .	1,961	1,848
Licenses to operate:		
Operators . . . . .	75,304	36,420
Chauffeurs . . . . .	30,937	41,021
Operator renewals . . . . .	206,391	211,349
Chauffeur renewals . . . . .	48,907	91,729
Total licenses . . . . .	361,539	380,519
Examinations . . . . .	42,595	93,501
Copies of certificates and licenses issued . . . . .	14,703	17,337
Duplicate automobile number plates . . . . .	6,831	7,552
Duplicate motor cycle number plates . . . . .	409	197
Fees	\$3,853,484 25	\$4,712,890 00
Miscellaneous receipts <sup>1</sup> . . . . .	6,747 45	920 38
Total fees . . . . .	\$3,860,231 70	\$4,713,810 38
Motor vehicle fees rebated (deducted) . . . . .	73,236 96	69,185 55
Net fees . . . . .	\$3,786,994 74	\$4,644,624 83
Court fines received by the Treasurer and Receiver-General . . . . .	146,453 04	208,173 27
Total receipts credited Motor Vehicle Fees Account . . . . .	\$3,933,448 78	\$4,852,798 10
Personal services . . . . .	\$249,375 83	\$299,945 23
Expenses . . . . .	177,444 05	242,465 86

<sup>1</sup> Interest amounting to \$4,290.67 included in miscellaneous receipts for 1920.

### AIRCRAFT.

Acting under the provisions of sections 35 to 43 of chapter 90 of the General Laws relating to aircraft, the registrar issued during the year ten airplane operator licenses, the fee in each case being \$5. Six certificates of registration for aircraft were also issued, the fee in each case being \$2, making the total fees received on account of aircraft and its operation \$62.

### RECOMMENDATIONS OF THE DEPARTMENT FOR LEGISLATION RELATING TO THE REGISTRY OF MOTOR VEHICLES.

See pages 103, 104 of this report.



---

---

DIVISION OF WATERWAYS AND  
PUBLIC LANDS

---

---



## DIVISION OF WATERWAYS AND PUBLIC LANDS.

---

### BOSTON HARBOR.

#### THE COMMONWEALTH FLATS AT SOUTH BOSTON.

##### *Commonwealth Pier No. 5.*

Repairs have been necessary during the year, and an examination has been made of the transformers feeding the converters which furnish power to the electric switches. These were found in good condition.

Notice was received from the United States quarantine authorities that fenders or racks should be furnished to keep vessels at least 4 feet away from the side of the pier to prevent infected rats from escaping from vessels to the pier. Eight floating fenders 4 feet wide were bought from the William L. Miller Company at a cost of \$1,600. These are sufficient to breast off four vessels and keep them at least 4 feet away from the pier.

The platform and railings forming the lines used by the United States Immigration Inspectors were found filthy and in constant need of repair. When the pier was first built these railings were installed temporarily, with the intention of replacing them later with railings made of pipe. On account of their insanitary condition the old railings were removed and twenty-six pipe line fences built and placed in position by employees at the pier.

Because of trouble with the vacuum return system of the heating plant it was decided to investigate the matter of changing this system. The firm of Hollis French & Allen Hubbard, consulting engineers, was employed for this investigation and submitted a report recommending a change which would reduce the cost of operating the plant. The recom-

mendation was adopted and the necessary work done under an agreement with the Walworth, English-Flett Company to make this change at cost plus 15 per cent, at a price not to exceed \$2,400. This work was completed in November, 1921, at a cost of \$1,937.89. The system as changed has proved satisfactory.

In the fall of 1921 it was decided to move the Registry of Motor Vehicles from the State House to this pier. To accommodate the division properly, it was necessary to make a number of changes in the partitions and to install additional skylights. That this might be done as rapidly as possible agreements were made on Sept. 9, 1921, with the Holt-Fairchild Company to make the necessary changes at cost plus 5 per cent, and on Oct. 5, 1921, with John H. Pray & Sons Company to furnish and lay linoleum for the sum of \$2.45 per square yard.

The work under both these agreements was completed early in December, that of the Holt-Fairchild Company amounting to \$67,815.93, and the John H. Pray & Sons Company to \$7,183.10.

In connection with this work it was necessary to move the offices of the superintendent to the opposite side of the pier and to use another room for the records of the Department. All of this work is included in the cost stated.

#### *Commonwealth Pier No. 6.*

At the request of the Boston Fish Market Corporation, the Division decided to repave, with granite blocks, certain brick paving opposite the buildings on the pier, and to leave to a later date the repaving of the central street and the archways under the buildings. On July 28, 1921, a contract was made with the B. E. Grant Company to repave the portion of the brick paving not repaired in 1918 and 1919, and to relay the stone blocks in the archway at the entrance to the pier and on the westerly side of the refrigerator building. This work was completed on Sept. 27, 1921, at a cost of \$27,182.73. This leaves the repaving of the central street between the two main buildings and the archways under the buildings to be done at a later date.

*Development of Land South of Summer Street.*

No sales have been made in this area during the year.

The construction of Bullock Street from Fargo Street to Claflin Street, under contract with the B. E. Grant Company, dated July 19, 1920, was completed on Jan. 12, 1921, at an expense of \$55,985.73.

On Aug. 30, 1921, a contract was made with the B. E. Grant Company to construct a portion of Bullock Street from Claflin Street to Cypher Street and the northerly half of Cypher Street from C Street to D Street, to build a sewer with catch basins and pave the street with granite blocks. The work was practically completed at the end of the year at a cost of \$24,968.75. This provides a continuous paved street from Fargo Street to South Boston, except for the crossing of Claflin Street which the city of Boston is expected to build in 1922.

Under its agreement with the Commonwealth the city has laid out D Street from Fargo Street to Claflin Street, and has completed the sewer and laid a water pipe preparatory to paving the street next year.

*South Bay.*

Late in 1920 the New York, New Haven & Hartford Railroad Company planned to extend the railroad yards at South Boston to take care of the increased number of passenger cars required. This larger area could be secured only by extending the yard into South Bay. The matter was studied for some time by the engineers of the Division and by the United States Engineers. To both it appeared that the best use of the bay would be made by deepening the existing channel and filling the flats outside the channel.

It was accordingly decided to recommend to the Legislature a change in the harbor line in this bay to allow a channel 160 feet wide along the westerly side of the bay, with a turning basin at the upper end near the wharf of the Metropolitan Coal Company. By chapter 137 of the Acts of 1921 this change in the harbor line was made.

License was later issued to the New York, New Haven &

Hartford Railroad Company to fill to the new harbor line to build the yard needed for the operation of its passenger equipment. Much of the filling is to be done upon flats belonging to the Commonwealth, and a large amount of tidewater displacement will result from the work. With the approval of the Governor and Council an agreement was made with the New York, New Haven & Hartford Railroad Company to pay the charges for Commonwealth tide lands and for tidewater displacement by deeding to the Commonwealth a tract of land bordering on the channel at the head of the bay. This was taken at the valuation fixed by the assessors of the city of Boston. The rate of charge for tidewater land of the Commonwealth was fixed by the Governor and Council, and the rate for tidewater displacement was that charged under licenses previously granted for work in this vicinity. The filling authorized was begun at once and is now in progress.

#### THE COMMONWEALTH FLATS AT EAST BOSTON.

The report for 1920 referred to studies made during the year for the development of this property and to the need for a change in the harbor lines. A recommendation for the revision of these lines and their extension was made to the Legislature and subsequently embodied in chapter 111 of the Acts of 1921.

Request was then made to have the United States pierhead and bulkhead lines re-established to conform to these new harbor lines. After consideration and hearing this revision was approved with two modifications. On the southerly side along the main harbor front the line was advanced to give a continuous straight line from East Boston to the southeasterly corner of Governor's Island, and the central dock was increased in width from 1,000 to 1,200 feet. A revision of the harbor line to conform to the United States line was later recommended to the Legislature.

After appropriations were made for the extension of the work, a contract was made on May 11, 1921, with the William L. Miller Company to build about 2,500 feet of bulkhead on the northerly edge of the area to be filled. The work was completed Aug. 26, 1921, at a cost of \$56,157.08. This bulk-



head will prevent material used in filling from escaping to the flats of the city in the vicinity of Wood Island Park.

A contract was made May 11, 1921, with the Atlantic, Gulf & Pacific Company to dredge and place upon the area enclosed by this bulkhead 1,100,000 cubic yards of material. The material is to be dredged, first, to complete the excavation of the berth of the first dock to be built upon the harbor front, and second, to begin the dredging of the central basin to be used later as a rehandling basin. During the year 791,722 cubic yards were excavated at a cost of \$260,793.23. Work under this contract will probably be completed early next year, but provision has been made for its extension if funds become available.

Under this contract no material has been rehandled during the year, but dredging has been done to increase the berth and rehandling basin. A small amount of material has been dredged from other parts of the harbor and deposited within the area to be filled. This deposit will be continued until the new rehandling basins become available for the work.

As the work of filling progressed, it became necessary to begin the building of the bulkhead on the westerly and southerly sides of the central basin. On Sept. 14, 1921, a contract was made with the William L. Miller Company to build about 1,900 feet of bulkhead on the westerly and southerly sides of the central basin. This work is now nearly completed.

#### RAILROAD CONNECTIONS WITH THE COMMONWEALTH FLATS AT EAST BOSTON.

During the past few years studies have been made for the best location for a railroad connection from the Boston & Maine and Boston & Albany railroads to the Commonwealth flats at East Boston. The Commission on Waterways and Public Lands, in its report for 1919, recommended legislation to authorize the construction of rail connections between the State's property and the existing railroad system of the Commonwealth, and the taking, if necessary, of the location, tracks and trackage rights of the Boston, Revere Beach & Lynn Railroad Company. It also submitted to the Legislature a plan for constructing a railroad track through the Harbor View

section of East Boston, connecting with the Boston & Maine and Boston & Albany Railroad tracks and extending easterly to the Commonwealth flats east of Jeffries Point. This matter was considered by the Legislature of 1920, and as a result chapter 54 of the Resolves of 1920 provided for a special commission to consider the question of railroad connections between the Commonwealth flats and the existing railroad systems.

This Commission reported on March 8, 1921 (House No. 1331 of 1921), recommending the construction of a track from the yard of the Boston & Albany Railroad at East Boston easterly to the Commonwealth flats, crossing the Boston, Revere Beach & Lynn Railroad at grade.

After considering this report the Legislature passed chapter 494 of the Acts of 1921, which authorized the Department of Public Works, Division of Waterways and Public Lands, to acquire a right of way and construct a railroad from the Boston & Albany Railroad, near Prescott Street, easterly, and crossing the Boston, Revere Beach & Lynn Railroad at grade to the flats of the Commonwealth beyond Jeffries Point, with a provision that no trains on the new tracks shall be operated to cross the tracks of the Boston, Revere Beach & Lynn Railroad except between the hours of midnight and 6 o'clock in the morning.

Under authority of this act negotiations have been in progress and surveys have been made. It is expected that early next year a taking will be made and the track constructed in accordance with the provisions of chapter 494 of the Acts of 1921.

#### BATTERY WHARF DREDGING.

A contract was made on June 22, 1921, with the Bay State Dredging and Contracting Company to dredge to a depth of 30 feet at mean low water an area in Boston Harbor between the harbor line in front of Battery Wharf and the docks on both sides of said wharf and the main ship channel, and to dredge to a depth of 25 feet at mean low water the dock on the northerly side of Battery Wharf. The contract prices for the work were: for dredging between the harbor line and the main ship channel, 55 cents per cubic yard, scow measure-

ment; for dredging in the dock, 50 cents per cubic yard, scow measurement; for removing boulders, \$20 per cubic yard.

This dredging was completed Aug. 30, 1921, at a cost of \$13,859.35. Toward this cost a contribution of \$4,000 was made by the Quincy Market Cold Storage and Warehouse Company.

#### MYSTIC RIVER.

At the date of the report for 1920 the dredging of the channel in Mystic River near Malden bridge was completed except for a shoal about 30 feet wide over the pipe of the Boston Consolidated Gas Company. This shoal was left at the request of the company that the covering over the pipe be undisturbed until a new syphon could be built under the river to prevent any interference with the gas supply of the city. In August, 1921, the new pipe was in operation. On Oct. 14, 1921, the dredging of this shoal was completed by the Bay State Dredging and Contracting Company at a cost of \$1,200.

The only obstructions remaining in this channel are certain cables of the Boston Elevated Railway Company projecting a little more than a foot above the bottom of the channel. Negotiations for the removal of these cables are in progress.

#### OLD HARBOR DREDGING.

On Aug. 30, 1921, a contract was made with the Bay State Dredging and Contracting Company for dredging to a depth of 6 feet at mean low water the basin opposite the Mosquito Fleet Yacht Club House at Old Harbor. The contract prices for this work were: for dredging, 53 cents per cubic yard, scow measurement; for removing boulders, \$15 per cubic yard. This work was completed Oct. 14, 1921, at a cost of \$9,277.12.

#### WINTHROP HARBOR DREDGING.

The work of dredging in this harbor under contract of Sept. 10, 1920, with the Bay State Dredging and Contracting Company was completed March 26, 1921, at a cost of \$12,499.03. This work provided a basin between the United States government landing and the wharf of the Winthrop Yacht Club.

## COTTAGE PARK, WINTHROP.

On Feb. 10, 1921, hearing was held upon the petition of the Cottage Park Yacht Club for redredging by the Commonwealth of the channel and basin at Cottage Park, originally dredged in 1906 and 1907. A contract was made on Aug. 30, 1921, with the Bay State Dredging and Contracting Company for dredging to a depth of 6 feet at mean low water the channel and basin located southerly from the Cottage Park Yacht Club House. The contract prices for this work were: for dredging, 51 cents per cubic yard, scow measurement; for removing boulders, \$15 per cubic yard.

This work was completed Oct. 17, 1921, at a cost of \$11,851.38. Toward the cost a contribution of \$1,000 was made by the Cottage Park Yacht Club.

## WOLLASTON BEACH DREDGING.

On Feb. 10, 1921, hearing was held upon the petition of the Wollaston Yacht Club for dredging by the Commonwealth of basins and approach channels to its club house. A contract was made on Aug. 1, 1921, with W. S. Rendle for dredging to a depth of 8 feet at mean low water the basin between the Wollaston and Squantum Yacht clubs, the inner end of the approach channel, and the basin on the easterly side of the approach channel, 250 feet long and 120 feet wide. The contract prices for this work were: for dredging, 42.5 cents per cubic yard, scow measurement; for removing boulders, \$3 per cubic yard.

Work under this contract was completed Nov. 26, 1921, at a cost of \$15,045.35. Toward this cost a contribution of \$1,000 was made by the Wollaston Yacht Club and a contribution of \$2,000 by the city of Quincy.

## HAYWARDS CREEK.

The lease of May 12, 1920, by the Commonwealth to the Fore River Shipbuilding Corporation of certain land at Haywards Creek was assigned by the lessee on Feb. 15, 1921, to the Bethlehem Shipbuilding Corporation, Ltd., and the assignment assented to by the Division as required by the terms of the lease.

Plans and specifications for a State pier, in progress at the time of the 1920 report, were completed, and on Aug. 6, 1921, proposals were received for the construction of this pier. Alternate bids were requested for a pier 500 feet long and 190 feet wide of pile or solid construction. When these proposals were received, certain suggestions were made by the Bethlehem Shipbuilding Corporation, Ltd., and a request for some changes in the plans to allow better facilities for the construction of the second dry dock proposed by the corporation. Because of this request and the general uncertainty of commercial conditions this project has been held in abeyance.

## RIVERS, HARBORS, TIDEWATERS AND FORESHORES OUTSIDE OF BOSTON HARBOR.

Section 11 of chapter 91 of the General Laws provides: —

Outside of Boston Harbor, the division shall undertake such work for the improvement, development, maintenance and protection of rivers, harbors, tidewaters and foreshores as it deems reasonable and proper, and for this purpose shall have the same powers conferred upon it by section thirty-one. In selecting the places to do such work, the division shall consider the general public advantage of the proposed work, the local interest therein as manifested by municipal or other contributions therefor, the importance of the industrial or commercial and other interests to be especially served thereby, and any other material considerations affecting the feasibility, necessity or advantage of the proposed work or the expenditure therefor. No work authorized by this section shall be begun until after a public hearing has been held and a survey and an estimate of the cost has been made.

The policy outlined in this section has been followed since the passage of chapter 481 of the Acts of 1909. During 1921 an appropriation of \$250,000 was available for this work.

Petitions under this section have been filed during the year with the Division for surveys and improvements in the following localities: Cohasset Harbor, Cohasset; Gloucester Harbor, Gloucester; Herring River, Harwich; Hyannisport, Barnstable; Lake Anthony, Oak Bluffs; Little River, Gloucester; Mill River, Gloucester; Nobscusset Harbor, Dennis; Salters Point, Dartmouth; Sand Hills, Scituate; Scorton Creek, Sandwich; Wild Harbor, Falmouth; Witchmere Harbor, Harwich.

Except for the holding of public hearings, and the making of surveys and estimates of cost in some instances, no conclusive action as to allotments has been taken during the year for carrying into effect improvements under petitions relating to Cohasset Harbor, Cohasset; Little River, Gloucester; Mill River, Gloucester; Salters Point, Dartmouth; Scorton Creek, Sandwich.

For information relating to work accomplished in various harbors and rivers in the Commonwealth not specifically

described in this report, attention is called to the annual reports of the Board of Harbor and Land Commissioners, to the annual reports of the Commission on Waterways and Public Lands for the years 1916 to 1919, inclusive, to the report of the Department of Public Works for 1920, and to the tables in the Appendix, which show localities, character of work, appropriations, contributions and expenditures by the Commonwealth and certain appropriations and expenditures by the Federal government.

#### ACUSHNET RIVER.

The work of dredging a channel in this river, under contract of Aug. 2, 1920, with the Bay State Dredging and Contracting Company was completed Feb. 19, 1921, at a cost of \$112,180.54.

As a result of this dredging a channel has been provided 25 feet deep at mean low water, 350 feet wide at the connection with the turning basin, narrowing to a width of 90 feet at a point about 500 feet north of the basin and continuing at this width a distance of 4,200 feet northerly.

Amount expended during the year, \$42,802.43.

Total expenditure to Dec. 1, 1921, \$118,764.85.

#### ELLISVILLE HARBOR, PLYMOUTH.

During the year the harbor at Ellisville maintained itself despite heavy storms in the early winter. Damage to the dike by one of these storms was repaired and the dike rebuilt by local labor interested, without expense to the Commonwealth.

In February the need for a jetty on the north side of the channel and for riprap protection on the south side was brought to the attention of the Division. It was suggested that this work be done under the general direction of the Division by local labor, and that the expense of supervision be paid by residents interested.

It appeared to the Division that an improvement so largely of local benefit might well be carried on in this manner. Plans for the work were accordingly submitted and an allotment made for material and labor. Under these conditions about 150 feet of timber crib work jetty, weighted with stone, was built on

the north side of the channel and a small amount of riprap placed on the south side.

Amount expended during the year, \$925.01.

Total expenditure to Dec. 1, 1921, \$16,069.83.

#### FALMOUTH HEIGHTS SEA WALLS.

In March of this year an examination of the sea walls at Falmouth Heights showed the necessity for back filling along the middle section of the sea wall built by the town. Under an arrangement with William H. Connor and Son, filling to the amount of 154.5 cubic yards was placed back of this wall at a price of \$3.25 per cubic yard. The work was finished in May at a total cost of \$502.13.

Amount expended during the year, \$559.89.

Total expenditure to Dec. 1, 1921, \$50,566.83.

#### FALMOUTH INNER HARBOR.

On May 13, 1921, a contract was made with William E. Burke to include the placing of about 50 tons of stone chips and 50 tons of stone riprap back of the timber fence on the easterly side of this harbor. The contract price for furnishing and placing this stone was \$5.50 per ton. This work was completed Nov. 9, 1921, at a cost of \$550.00.

Complaints were received during the summer regarding the shoaling of the channel leading to this harbor. An investigation showed that sand was being carried by the sea around the outer end of one of the jetties and deposited in the channel entrance. To prevent a continuance of this shoaling it was decided to extend the westerly jetty.

Proposals were received on Sept. 2, 1921, and a contract was made Sept. 6, 1921, with the Bay State Dredging and Contracting Company to furnish and place about 4,000 tons of stone riprap and chips as an extension to the westerly jetty. The contract price for furnishing and placing this stone was \$3.85 per ton. This work was completed Oct. 1, 1921, at a cost of \$16,880.33.

Amount expended during the year, \$17,779.23.

Total expenditure to Dec. 1, 1921, \$99,317.80.



## GLOUCESTER HARBOR.

*Fresh Water Cove.* — In July of this year the Division was asked to dredge the entrance channel and basin of this cove to provide accommodation for fishing boats using the harbor. A channel had been dredged by the Federal government to serve the United States Coast Guard station near the entrance to the cove and a basin provided opposite the launchways. The United States Coast Guard was interested in further dredging, and agreed to make a contribution of not more than \$3,300 toward the cost of the work.

A contract was made on Aug. 15, 1921, with the Bay State Dredging and Contracting Company for dredging to a depth of 6 feet at mean low water a channel 100 feet wide on the bottom and 500 feet long, and a basin 125 feet wide on the bottom and 400 feet long, at the following contract prices: for dredging channel and basin and disposing of dredged material, 50 cents per cubic yard; for removing and disposing of all boulders, \$12 per cubic yard.

During the progress of the work, in response to requests for an extension of the dredging, the length of the basin was increased 100 feet. Work under this contract was completed Sept. 22, 1921, at a cost of \$15,477.72.

*Gloucester Inner Harbor.* — In connection with the work at Fresh Water Cove, the contractor agreed to dredge at the same contract prices to the depth of 18 feet at mean low water an area about 300 feet long and 70 feet wide lying between the 18-foot contour and the harbor line opposite and northerly of the entrance to Vincent's Cove. The work was completed Sept. 22, 1921.

Amount expended during year, \$17,477.53.

Total expenditure at Gloucester Harbor to Dec. 1, 1921, \$107,244.74.

## HERRING RIVER, HARWICH.

On Feb. 10, 1921, hearing was held upon a petition of the selectmen of Harwich for dredging and for the extension of jetties and bulkhead at this river. Proposals for dredging and riprap work were received, and on May 13, 1921, a contract with William E. Burke was made to include the dredging

of the entrance channel 60 feet wide on the bottom, 1,000 feet long and 6 feet deep at mean low water, and the placing of about 500 tons of stone chips and 500 tons of stone riprap on the beach east of the entrance to the river. The contract prices are: for dredging channel, 63 cents per cubic yard; for removing boulders, \$10 per cubic yard; for furnishing and placing riprap, \$5.10 per ton.

The work of dredging the entrance channel was completed Sept. 17, 1921, but the protective work has not been begun. It is expected that the riprap will be placed early in the coming spring.

Amount expended during the year, \$8,578.84.

Total expenditure to Dec. 1, 1921, \$50,168.88.

#### HYANNISPORT HARBOR.

On Feb. 10, 1921, hearing was held upon a petition of the Hyannisport Village Improvement Association, and others, for dredging a channel in this harbor and for the removal of boulders back of the breakwater. A contract was made with William E. Burke on May 13, 1921, to include the dredging to the wharf in this harbor of a channel 700 feet long, 150 feet wide, and 6 feet deep at mean low water, and the removal of boulders from an area of about 16 acres lying northeast of the outer end of the breakwater. The contract prices are: for dredging, 63 cents per cubic yard; for removing boulders, \$10 per cubic yard; for removing boulders from area of 16 acres northeast of breakwater, \$90 for each day the lighter is engaged in the work.

The dredging in this harbor is now nearing completion, but the removal of the boulders from the area back of the breakwater will not be begun until the coming spring.

Amount expended during the year, \$7,194.29.

Total expenditure to Dec. 1, 1921, \$59,683.11.

#### KATAMA BAY, EDGARTOWN.

The work of excavating a channel through South Beach to connect Katama Bay with Edgartown Harbor was completed in March of this year at a cost of \$2,168.46. Attempts had been made previously by local fishermen to dig a channel

through this beach, but each time the opening had failed to maintain itself. The fishermen interested were convinced that with a larger expenditure a wider opening made under certain conditions of wind and tide would be permanent. The Division agreed to have this work done, under the direction of its chief engineer, by local labor at a cost not to exceed \$2,500. Toward this cost the town made a contribution of \$300.

On March 23 an opening was made through the beach. By the action of wind, tide and current the width of the opening was rapidly increased to 150 feet. Since the completion of the work the opening has reached a width of 500 feet.

Amount expended during the year, \$2,547.09.

Total expenditure at Edgartown Harbor to Dec. 1, 1921, \$2,826.62.

#### LAKE ANTHONY.

On Feb. 10, 1921, hearing was held upon the petition of the selectmen of Oak Bluffs for dredging in Lake Anthony. A contract was made on May 13, 1921, with William E. Burke to include dredging to a depth of 8 feet at mean low water of the entrance channel 100 feet wide and 750 feet long, and of the anchorage basin 800 feet long and 200 feet wide. The contract prices for this work are: for dredging, 43.3 cents per cubic yard; for removing boulders, \$10 per cubic yard. Toward the cost of this work a contribution of \$2,500 has been made by the town of Oak Bluffs. This work has not been begun but is expected to be completed during the coming winter.

Amount expended during the year, \$341.52

Total expenditure to Dec. 1, 1921, \$62,486.70.

#### MENAMSHA INLET.

On Feb. 10, 1921, hearing was held upon petitions of the selectmen of Chilmark, and others, for dredging Menamsha Inlet. In the following month certain repairs to the jetties at this harbor were requested by the superintendent of the Second Lighthouse District.

A contract with William E. Burke was made on May 13, 1921, to include the dredging of an anchorage basin 300 feet long, 150 feet wide and 6 feet deep at mean low water, and the placing of about 200 tons of stone riprap in strengthening

and repairing the jetties, and the moving and resetting of the light on the east jetty. The contract prices for this work are: for dredging, 53 cents per cubic yard; for furnishing and placing stone riprap, \$5.80 per ton; for lifting and resetting, not exceeding twelve large stones now in the jetties, including lifting and resetting the stones in which the lantern standard is fixed, the lump sum of \$275. This work is not yet begun.

Amount expended during the year, \$605.92.

Total expenditure to Dec. 1, 1921, \$64,625.61.

#### NEW BEDFORD STATE PIER.

The matter of leasing this pier for a term of years, under advisement at the date of the report for 1920, was further considered early in the year. On Dec. 4, 1920, advertisements were published in the New Bedford and Boston papers asking for proposals for the lease of the pier.

These proposals were received Dec. 20, 1920. In the following month the Division voted to lease the pier to the New Bedford Storage Warehouse Company. Before proceeding further in this matter notice of this intention was sent, in accordance with the provisions of chapter 375 of the Acts of 1920, to the mayor and aldermen of New Bedford. At their request a public hearing relative to this lease was held in New Bedford on Feb. 19, 1921.

A lease under date of March 1, 1921, to the New Bedford Storage Warehouse Company for a term of five years was given under the provisions of chapter 375 of the Acts of 1920, and provided for the payment of rental as follows: \$12,000 for the first year; \$13,500 for the second year; \$15,000 for the third year; \$16,500 for the fourth year; and \$18,000 for the fifth year. Since this date the New Bedford Storage Warehouse Company has been in charge of the operation of the pier.

This pier is capable of accommodating a vessel 600 feet long with a draft of 25 feet. It is provided with electric portable hoists for handling cargo, and is equipped to serve large ocean-going steamers.

Upon the pier is a steel and concrete two-story building 300 feet long and 105 feet wide provided with a freight elevator. In extension of this building two one-story wooden sheds have

been built, in addition to a wooden shed for the use of immigrants. These buildings give a storage area of approximately 82,000 square feet.

A channel 25 feet deep at mean low water leads from deep water in Buzzards Bay to this pier. Additional dredging to facilitate pier operations is now under consideration.

#### NOBSCUSSET HARBOR.

On Feb. 10, 1921, hearing was held upon petition of the selectmen of Dennis for raising, widening and strengthening the breakwater at Nobscusset Point. A contract was made on Aug. 15, 1921, with Calvin G. Fletcher to include the furnishing and placing of about 800 tons of stone riprap to strengthen and repair about 100 feet of this breakwater. The contract price for furnishing and depositing this stone in the breakwater was \$6 per ton. This work was completed Nov. 27, 1921, at a cost of \$4,868.50.

Amount expended during the year, \$5,319.67.

Total expenditure to Dec. 1, 1921, \$29,033.61.

#### OAK BLUFFS SEA WALL.

In December the attention of the Division was called to the need for further protection at the sea wall on the easterly side of Sea View Avenue. A contract made May 13, 1921, with William E. Burke included the placing of about 500 tons of stone chips and 1,000 tons of stone riprap in front of this wall. The contract price for furnishing and placing this stone was \$4.95 per ton. This work was completed Oct. 23, 1921, at a cost of \$7,455.56, and comprised the protection of about 345 feet at the southerly end of the wall.

To furnish needed protection to the remaining 250 feet at the northerly end of the wall a contract was made on Nov. 18, 1921, with the T. A. Scott Company, Inc., to place about 300 tons of stone chips and 700 tons of stone riprap. The contract price for furnishing and placing this stone is \$6.4 per ton. This work is now in progress.

Amount expended during the year, \$7,109.26.

Total expenditure to Dec. 1, 1921, \$29,151.37.

## SCITUATE SEA WALLS.

By the provisions of chapter 585 of the Acts of 1920 the Division was authorized to make certain expenditures for the purpose of protecting the shores in the town of Scituate from damage by the sea. For this the Division may expend during 1920, 1921, 1922, 1923 and 1924 a total sum not exceeding \$250,000, of which one-third is to be contributed by the town of Scituate, one-third by the county of Plymouth, and one-third from State appropriations available for river and harbor improvement. The expenditure in any one year is limited to \$100,000, except that an unexpended balance in any year may be used in the succeeding year. This act was not to become effective until accepted by the county commissioners and the town.

At a special town meeting held Dec. 19, 1920, the town of Scituate voted to accept the provisions of the act, and appropriated \$25,000 for the work of shore protection during 1921. On Dec. 18, 1920, the county commissioners of Plymouth County voted to accept the act.

At the beginning of the year conferences were held with the selectmen and the county commissioners, at which reports of the engineering department upon examination of shore conditions in Scituate were discussed. It was decided to spend the money available in 1921 in the localities where the need of protective work seemed most urgent. In accordance with this policy, work during the year has been carried on at the Glades, at Humarock Beach and at Third Cliff.

*Glades.* — On Sept. 14, 1921, a contract was made with Arthur J. Mitchell for building about 253 feet of concrete sea wall, about 300 feet of concrete footings under an existing concrete wall, and the excavating of about 7,500 cubic yards of coarse gravel or shingle from an area westerly of the proposed wall and depositing the same on the beach. The contract prices for the work are: for furnishing materials and constructing the new wall, \$11 for each cubic yard of concrete measured in place in the completed work; for furnishing materials and constructing the concrete footings, \$4 for each linear foot of completed footing; for excavating, placing and grading of all

material, \$1 for each cubic yard of material measured in place before excavating. This work is now in progress.

Amount expended during the year, \$6,360.94.

Total expenditure to Dec. 1, 1921, \$6,412.57.

*Humarock Beach.* — On May, 27, 1921, a contract was made with John Williams & Co. for the construction of about 2,300 linear feet of concrete sea wall with return walls, three sets of concrete steps, forty-six concrete jetties and one concrete apron at this beach. The contract prices for this work were: for furnishing materials and constructing the main wall and steps, \$12.50 per cubic yard of concrete measured in the completed work; for furnishing materials and constructing each spur jetty, \$150 for each complete jetty 25 feet in length; for furnishing material and constructing concrete slab and shutoff walls at the end of Marshfield Avenue, \$400 for the completed work. The cost of the apron for the protection of Marshfield Avenue, amounting to \$400, was paid by the town. This work was completed Oct. 7, 1921, at a cost of \$55,564.75.

Amount expended during the year, \$56,724.56.

Total expenditure to Dec. 1, 1921, \$56,960.63.

*Third Cliff.* — On March 11, 1921, a contract was made with the Bay State Dredging and Contracting Company for placing riprap near the southerly end of this cliff at a price of \$5.80 per ton. At the completion of this work on April 27, 1921, stone riprap to the amount of 3,700 tons had been placed to protect the southerly end of the cliff, at a cost of \$21,527.98.

Amount expended during the year, \$22,148.51.

Total expenditure to Dec. 1, 1921, \$22,148.51.

#### TAUNTON RIVER, SOMERSET.

In September request was received from the New England Oil Refining Company for dredging by the Commonwealth of an area in Taunton River between Slades Ferry bridge and the Brightman Street bridge. Toward the cost of this work the company agreed to make a contribution of \$12,500.

A contract was made on Nov. 3, 1921, with the Bay State Dredging and Contracting Company for dredging to the depth of 30 feet at mean low water an area in Taunton River lying between the Slades Ferry bridge and the Brightman Street

bridge. The contract prices for this work are: for dredging, 72 cents per cubic yard; for removing boulders, \$22 per cubic yard. This work is now in progress.

Amount expended during the year, \$2,512.46.

Total expenditure to Dec. 1, 1921, \$4,635.40.

#### WEST BAY, BARNSTABLE.

The work of dredging a channel in this bay, under contract of July 1, 1920, with the Bay State Dredging and Contracting Company, was completed Jan. 13, 1921, at a cost of \$27,661.14.

An examination made in March of this year showed the urgent need of protecting the bank east of the entrance channel and the crest of the beach west of the west jetty. A contract made on May 13, 1921, with William E. Burke included the placing of about 500 tons of stone chips on the bank east of the entrance channel, and about 200 tons of stone chips and 500 tons of stone riprap on the crest of the beach west of the west jetty. The contract price for furnishing and placing this stone is \$4.97 per ton. This work is now in progress.

Amount expended during the year, \$2,539.57.

Total expenditure to Dec. 1, 1921, \$84,067.95.

#### WILD HARBOR, FALMOUTH.

On May 13, 1921, a contract was made with William E. Burke to include the dredging of an entrance channel to the inner basin at this harbor. The specifications provided that the channel should be dredged 900 feet long, varying in width from 100 feet at the outer end to 60 feet on the inner portions and 6 feet deep at mean low water. The contract prices were: for dredging, 46.5 cents per cubic yard; for removing and disposing of boulders, \$10 per cubic yard. This work was completed July 29, 1921, at a cost of \$6,442.05.

While the dredging was in progress it was found that the stone work in the jetty at this harbor had settled to such a degree that in heavy weather sand was being driven over the jetty into the entrance channel. Under an agreement with William H. Connor & Son Company a concrete top was built upon this jetty at a cost of \$1,105.

Hearing was held on July 15, 1921, upon a petition of Ed-



ward N. Dahlborg for an extension of this jetty. On Aug. 15, 1921, a contract was made with Calvin G. Fletcher to include the placing of about 2,000 tons of stone riprap and chips as an extension of this breakwater. The contract price for furnishing the stone and building this extension was \$6 per ton. This work was completed Nov. 27, 1921, at a cost of \$12,228.88.

Amount expended during the year, \$17,638.45.

Total expenditure to Dec. 1, 1921, \$33,253.17.

#### WITCHMERE HARBOR.

On Feb. 10, 1921, hearing was held upon a petition of the selectmen of Harwich for dredging and extension of jetties at this harbor. A contract made on May 13, 1921, with William E. Burke included dredging in the entrance channel to this harbor to a depth of 6 feet at mean low water for a width of 60 feet on the bottom and a length of 850 feet. The contract prices for this work were: for dredging, 63 cents per cubic yard; for removing boulders, \$10 per cubic yard. This work was completed Oct. 23, 1921, at a cost of \$4,978.26.

An examination of the west jetty at this harbor, made in October, showed that sand was working through the spaces between the stones and causing shoals in the channel. To protect the channel and repair the breakwater a contract was made on Nov. 18, 1921, with T. A. Scott Company, Inc., to include the placing of about 300 tons of stone chips along the west side of the westerly jetty. The contract price for furnishing and placing this stone is \$6.95 per ton. This work is now in progress.

Amount expended during the year, \$5,195.69.

Total expenditure to Dec. 1, 1921, \$34,965.10.

## MISCELLANEOUS MATTERS.

## GREAT PONDS.

Jurisdiction over great ponds belonging to the Commonwealth, these ponds containing in their natural state 10 or more acres of land, was conferred upon the former Board of Harbor and Land Commissioners by chapter 318 of the Acts of 1888, and further authority given that Board by chapter 379 of the Acts of 1904, to sell and convey or lease any of the islands owned by the State in the great ponds, subject to the approval of the Governor and Council.

During the year the Division has made examinations, held conferences or taken other proceedings relative to Baddacock Pond, Groton; Farm Pond, Oak Bluffs; Furnace Pond, Pembroke; Island Creek Pond, Duxbury; Lake Quinsigamond, Worcester; Manchaug Lake, Douglas and Sutton; North Pond, Hopkinton and Milford; Martins Pond, North Reading; Oldham Pond, Pembroke; Phillipston Pond, Phillipston; Pon-toosuc Lake, Pittsfield; Stockbridge Bowl, Stockbridge; Wenham Pond, Carver; Whalom Lake, Lunenburg.

A list of the lakes and ponds of the State with areas of 10 or more acres, given by counties, is printed in the report of the Commission on Waterways and Public Lands on "Water Resources of Massachusetts, 1918."

By chapter 12 of the Resolves of 1921 the Division of Waterways and Public Lands was directed to make surveys, examinations and maps of the great ponds in the Commonwealth except those under the jurisdiction of any State board, commission or department other than the Department of Public Works, and was authorized to expend \$5,000 during the years 1921 and 1922 for this purpose. In accordance with this resolve a survey has been made of the following ponds: —

NAME.	Location.	Area (Acres).	Maximum Depth (Feet).
Coonemessett Pond . . . . .	Falmouth . . . . .	157.52	43.4
Crooked Pond . . . . .	Falmouth . . . . .	34.09	43.0
Deep Pond . . . . .	Falmouth . . . . .	26.69	29.1
Jenkins Pond . . . . .	Falmouth . . . . .	86.68	44.2
Long Pond . . . . .	Falmouth . . . . .	149.65	76.4
Mares Pond . . . . .	Falmouth . . . . .	29.11	56.3
Round Pond, east of Coonemessett Pond	Falmouth . . . . .	11.46	8.8
Round Pond . . . . .	Falmouth . . . . .	18.06	25.2
Shallow Pond . . . . .	Falmouth . . . . .	11.51	2.9
Spectacle Pond . . . . .	Falmouth . . . . .	19.25	15.5
Beck Pond . . . . .	Hamilton . . . . .	35.8	13.5
Gravelly Pond . . . . .	Hamilton . . . . .	45.4	56.2
Round Pond . . . . .	Hamilton . . . . .	36.8	24.3
Lake Mahkeenac . . . . .	Stockbridge . . . . .	371.7	43.9
Coys Pond . . . . .	Wenham . . . . .	24.5	7.5

Many ponds or reservoirs in the Commonwealth have been created by the building of dams across streams which are in some instances the outlets of great ponds. Often it is difficult to decide whether a great pond exists in these localities or whether the ponds are wholly artificial.

#### CONSERVING AND EQUALIZING THE FLOW OF WATER IN RIVERS AND STREAMS.

By chapter 87 of the Resolves of 1918 a special commission on the water resources of the Commonwealth of Massachusetts was created, including in its membership the chairman of the Commission on Waterways and Public Lands, to investigate the water resources of the Commonwealth, and their report was printed as Senate Document No. 298 of 1919.

By chapter 359, Acts of 1909, chapter 564, Acts of 1912, and chapter 84, Resolves of 1917, co-operation was established between the Commonwealth and the Water Resources Branch of the United States Geological Survey, whereby data relating to the gauging of streams within the Commonwealth, and other work of a similar character carried on by the said survey,

have been obtained for use by the Division, said data being available for other departments of the Commonwealth.

Toward the cost of this work the Commonwealth has paid during the year, \$2,999.96.

#### PROVINCE LANDS.

The territory belonging to the Commonwealth, known as the Province Lands in Provincetown, comprises about 3,390 acres lying northerly and westerly of a line described in chapter 470 of the Acts of 1893. By the terms of this act the Board of Harbor and Land Commissioners was given general care and supervision of this area.

Reclamation work on these lands has been carried on under the direction of a superintendent since 1894. To prevent the movement of the sand the barren dunes are first covered with brush or planted with beach grass. The grass is pulled in bunches about 2 inches thick for transplanting in rows about 4 feet apart and 6 inches deep, and so transplanted lives between four and five years. This work is followed and reinforced by the transplanting of trees and shrubs.

During the year work on these lands has been continued in accordance with these methods. Twenty acres of sand dunes have been covered with brush, and 8 acres of bayberry transplanted. In addition, 65,000 pines were transplanted.

The sum of \$178.70 has been paid into the State treasury during the year, being the amount received from licenses issued to various parties to cultivate and pick cranberries on the bogs, and to mow meadowlands.

Amount expended during the year, \$3,998.59.

Total expenditure to Dec. 1, 1921, \$89,128.56.

#### MASSACHUSETTS ATLAS SHEETS AND TOWN BOUNDARY ATLASES.

Under authority of chapter 57, Resolves of 1890, chapter 42, Resolves of 1891, chapter 360, Acts of 1900, and chapter 69, Resolves of 1915, 3,650 atlas sheets of the map of the Commonwealth and 3 town boundary atlases have been sold during the year ending Nov. 30, 1921, for which \$530.20 was received and forwarded to the Treasurer and Receiver-General.

No atlases were delivered during the year under the authority of chapter 360, Acts of 1900, as amended by chapter 484, Acts of 1909.

#### RE-ESTABLISHMENT OF CERTAIN TRIANGULATION STATIONS.

By chapter 223 of the General Acts of 1915, the Board of Harbor and Land Commissioners was authorized to make such surveys and do such other work as may be required by any order of the Land Court; to re-establish and permanently mark certain stations previously established in connection with the topographical survey of the Commonwealth and the town boundary survey, which have been lost or destroyed; and to obtain the geographical position of such new points and stations as may be required from time to time by the court. The Board was allowed to expend not exceeding \$1,000 from the sum of \$1,500 which may be annually paid out of the State treasury.

During the year the location of the following triangulation stations was determined and permanently marked on the ground, and their geographical positions furnished to the Land Court: 7 stations in Worcester; 9 stations in Sandwich; 7 stations in Nantucket; 7 stations in Framingham; and 3 stations in Essex.

Further details of these stations are in the files of the Division.

Amount expended during the year, \$956.55.

Total expenditure to Dec. 1, 1921, \$6,664.74.

#### SPECIAL REPORTS TO THE LEGISLATURE.

*Traffic Tunnel to connect Boston and East Boston.* — Report made March, 1921, under the provisions of chapter 73 of the Resolves of 1920, by the Division of Waterways and Public Lands of the Department of Public Works and the transit department of the city of Boston.

*Gloucester Marshes and Beaches.* — House No. 356 of 1921. Report made Jan. 7, 1921, under provisions of chapter 34 of the Resolves of 1920, by a special commission consisting of the Commissioner of Public Works, the county commissioners of

Essex County, and the mayor of Gloucester, relative to the taking over for public uses of certain marshes and beaches in the city of Gloucester.

*Bridge over Lobster Cove, Gloucester.* — House No. 357 of 1921. Report made Jan. 12, 1921, under the provisions of chapter 52 of the Resolves of 1920, by the Department of Public Works, relative to the necessity and cost of the construction of a new bridge.

*Boston & Maine Railroad Claim against the Commonwealth.* — House No. 358 of 1921. Report made Jan. 1, 1921, under the provisions of chapter 37 of the Resolves of 1920, by the Attorney-General and the Division of Waterways and Public Lands of the Department of Public Works, relative to a certain claim of the Boston & Maine Railroad.

*Mystic, Malden and Neponset Rivers and Chelsea Creek.* — House No. 689 of 1921. Report made Jan. 12, 1921, under the provisions of chapter 17 of the Resolves of 1919, by the Department of Public Works, Division of Waterways and Public Lands, relative to improvement of these rivers.

*Boston and Chelsea Transportation Facilities.* — House No. 1157 of 1921. Report made Feb. 1, 1921, under the provisions of chapter 71 of the Resolves of 1920, by the Division of Waterways and Public Lands of the Department of Public Works, relative to transportation facilities.

*Commonwealth Pier No. 5, South Boston.* — House No. 1261 of 1921. Report made Feb. 23, 1921, by the Division of Waterways and Public Lands of the Department of Public Works, in response to a communication from the committee on rules of the House of Representatives, relative to operation of this pier.

*Rail Connections at East Boston.* — House No. 1331 of 1921. Report made March 8, 1921, under the provisions of chapter 54 of the Resolves of 1920, by a special commission consisting of the Commissioner of Public Works, the chairman of the Department of Public Utilities, and the Supervisor of Administration, relative to the best route for making rail connections between the Commonwealth flats at East Boston and the Boston & Albany and Boston & Maine railroads.

*Dry Dock Claims.* — House No. 1173 of 1921. Report made

Feb. 4, 1921, by the Department of Public Works, Division of Waterways and Public Lands, under the provisions of section 35 of chapter 30 of the General Laws, relative to claims growing out of the construction by the Commonwealth of the dry dock at South Boston.

LICENSES GRANTED DURING THE YEAR.

Nos.

97. Petition of the Nantucket Yacht Club for license to build a bulkhead and fill solid in Nantucket Harbor, Nantucket. Granted Dec. 3, 1920.
98. Petition of Jessie B. Dawes for license to build a timber bulkhead and fill solid at Houghs Neck, Quincy. Granted Dec. 9, 1920.
99. Petition of the Pilgrim Tercentenary Commission for approval of plans for building structures, filling solid, and other work in Plymouth Harbor, Plymouth, as authorized by chapter 107 of the Resolves of 1916, and chapter 187 of the Special Acts of 1919. Granted Dec. 14, 1920.
100. Petition of the town of Barnstable, by a committee of said town, for license to build a public wharf, on piles, and a landing, in Lewis Bay, Barnstable. Granted Dec. 20, 1920.
101. Petition of Laura C. Foster for license to build a sea wall and fill solid in Smiths Cove in Gloucester Harbor, Gloucester. Granted Dec. 20, 1920.
102. Petition of Alfred Therriault for license to build a sea wall and fill solid in Salem Harbor at Palmers Point, Salem. Granted Dec. 24, 1920.
103. Petition of the Haverhill Electric Company for license to lay and maintain a submarine cable in and under Merrimack River, Haverhill. Granted Dec. 27, 1920.
104. Petition of the Palmer and Parker Company for license to build a pile and timber bulkhead on the south channel of Mystic River, Boston. Granted Dec. 27, 1920.
105. Petition of the city of Boston, by its commissioner of public works, for license to build and maintain a concrete sewer and to fill solid in Boston Harbor at South Boston. Granted Jan. 10, 1921.
106. Petition of The Edison Electric Illuminating Company of Boston for license to lay a cable in Charles River at and near the draw opening of Warren bridge, Boston. Granted Jan. 10, 1921.
107. Petition of the Brown Betty Amusement Company, Incorporated, for license to build a wall and fill solid in Oldham Pond, Pembroke. Granted Jan. 10, 1921.
108. Petition of Jonathan Warner for license to build and maintain a pile pier in Vineyard Sound at Squaw Island, in Barnstable. Granted Feb. 4, 1921.

Nos.

109. Petition of the Fairhaven Mills for license to build and maintain a pile and timber bulkhead and fill solid in Acushnet River adjoining Coggeshall Street bridge, in New Bedford. Granted Feb. 18, 1921.
110. Petition of the city of Boston for license to drive additional piles in Boston Harbor at the east wharf at Long Island, in Boston. Granted Feb. 25, 1921.
111. Petition of the city of New Bedford for license to build and maintain a pile and timber bulkhead and riprap slope, and to fill solid, in Acushnet River at Pope's Island, in New Bedford. Granted Feb. 25, 1921.
112. Petition of the Boston & Maine Railroad for license to repair and strengthen its railroad bridge No. 50 on its Portland Division, over Merrimack River, in Newburyport and Salisbury. Granted March 25, 1921.
113. Petition of the county commissioners of Barnstable County for license to make repairs to Bass River bridge across Bass River in Yarmouth and Dennis. Granted April 8, 1921.
114. Petition of the Western Union Telegraph Company of New York for license to lay two submarine cables in Fort Point Channel at Summer Street bridge and across the draw way in said bridge, in Boston. Granted April 8, 1921.
115. Petition of the Western Union Telegraph Company of New York for license to lay a submarine cable in Beverly Harbor westerly of the Boston & Maine Railroad bridge, in Beverly and Salem. Granted April 8, 1921.
116. Petition of Batchelder Brothers for license to drive piles in front of its bulkhead on Roxbury Canal, in Boston. Granted April 15, 1921.
117. Petition of Anna T. Fitzgerald for license to construct and maintain a building supported by concrete piers in and over Lake Quinsigamond at Lake Avenue, in Worcester. Granted April 15, 1921.
118. Petition of the town of Chatham for license to build a pile pier and float-stage in Little Mill Pond, in Chatham. Granted April 15, 1921.
119. Petition of the Monomoy Weir and Fish Company, Incorporated, for license to build a pile pier in Mill Pond, in Chatham. Granted April 15, 1921.
120. Petition of the town of Gosnold for license to build a pile wharf and wall, to fill solid, and to dredge in Cuttyhunk Harbor at Cuttyhunk Island, in Gosnold. Granted April 22, 1921.
121. Petition of the trustees of the Universal Tide Power Company for license to build a dam, tide-gates, pile and timber bulkheads, to excavate a basin, and to dredge and deposit material, in Saugus River, Saugus. Granted April 29, 1921.
122. Petition of J. Philip Hartt for license to build a wharf and float-stages in Sippican Harbor, in Marion. Granted April 29, 1921.



Nos.

123. Petition of the William Stopford Company, Incorporated, for license to build a pile pier on Danvers River, in Beverly. Granted April 29, 1921.
124. Petition of the Fairhaven Mills for license to maintain an intake well and connecting pipe in Acushnet River, New Bedford. Granted May 6, 1921.
125. Petition of the Holyoke Water Power Company for license to build an addition to its power house on Connecticut River, in Holyoke. Granted May 6, 1921.
126. Petition of the New England Tire and Rubber Company for license to construct a pumping well and suction pipe in Connecticut River, in Holyoke. Granted May 6, 1921.
127. Petition of the Locke Coal Company for license to construct a wharf, repair a bulkhead and dredge in Malden River, in Malden. Granted May 6, 1921.
128. Petition of the city of Boston for license to reconstruct Chelsea bridge on the south channel of Mystic River, in Boston. Granted May 20, 1921.
129. Petition of Harold E. Davis for license to lay a water pipe in Annisquam River, in Gloucester. Granted May 23, 1921.
130. Petition of William H. Dolan for license to erect and maintain two wires across Whalom Lake, in Lunenburg. Granted May 27, 1921.
131. Petition of the West End Street Railway Company, by the Boston Elevated Railway Company, its attorney, for license to build a pile and timber bulkhead and fill solid in Chelsea Creek adjoining Eagle Street, East Boston. Granted June 3, 1921.
132. Petition of the West End Street Railway Company, by the Boston Elevated Railway Company, attorney, for license to maintain and continue filling along the northerly side of Mystic River, in Boston. Granted June 3, 1921.
133. Petition of the West End Street Railway Company, by the Boston Elevated Railway Company, attorney, for license to maintain and continue filling in tidewater westerly of Neponset River, south of Neponset Avenue, in Boston. Granted June 3, 1921.
134. Petition of the Eastern Massachusetts Street Railway Company for license to remove a dam and other structures from North River, in Salem. Granted June 13, 1921.
135. Petition of the Boston & Albany Railroad, the New York Central Railroad Company, lessee, for license to maintain its submarine signal cable at its bridge across Charles River, in Boston and Cambridge. Granted June 15, 1921.
136. Petition of the Boston & Albany Railroad, the New York Central Railroad Company, lessee, for license to maintain its submarine cable on its Grand Junction Branch across Broad Canal, in Cambridge. Granted June 15, 1921.

Nos.

137. Petition of the Boston, Revere Beach & Lynn Railroad Company for license to replace an old submarine cable with a new submarine cable under Saugus River, in Lynn and Revere. Granted June 15, 1921.
138. Petition of the New York, New Haven & Hartford Railroad Company for license to maintain three cables under Fort Point Channel and under the draw way in its drawbridge, in Boston. Granted June 15, 1921.
139. Petition of the Simpson's Patent Dry Dock Company for license to build a temporary cofferdam and to dredge in Boston Harbor at East Boston. Granted June 15, 1921.
140. Petition of the county commissioners of Essex County for approval of plans for two bridges in and over Good Harbor Creek in a proposed new highway back of Good Harbor Beach in Gloucester, as authorized by chapter 218 of the General Acts of 1919. Approval signed June 12, 1921.
141. Petition of Harry H. Wiggin for license to build structures, fill solid and to dredge in Mystic River, in Boston. Granted June 15, 1921.
142. Petition of the Naumkeag Steam Cotton Company for license to build a wall and bulkhead and to fill solid in Palmer's Cove, in Salem. Granted June 15, 1921.
143. Petition of the A. E. Little Company for license to build a wall in Forest River, in Marblehead. Granted June 15, 1921.
144. Petition of Manuel Furtado for license to build a pile wharf in Provincetown Harbor, in Provincetown. Granted June 15, 1921.
145. Petition of William H. Hand, Jr., for license to build and maintain launching ways in Acushnet River, in Fairhaven. Granted July 1, 1921.
146. Petition of the city of New Bedford by its water department for license to lay and maintain a 2-inch water pipe in Acushnet River and under the draw way in the New Bedford and Fairhaven bridge, in New Bedford. Granted July 1, 1921.
147. Petition of Harold Brooks for license to build and maintain structures, to fill solid and dredge a basin in Weymouth Fore River, in Weymouth. Granted July 1, 1921.
148. Petition of the Metropolitan District Commission for license to reconstruct a portion of a highway bridge over Saugus River, in Lynn. Granted July 2, 1921.
149. Petition of the New Bedford Gas and Edison Light Company for license to construct four dolphins and a platform in Acushnet River, New Bedford. Granted July 8, 1921.
150. Petition of the town of Saugus to build a temporary structure at the bridge across Saugus River at Lincoln Avenue, Saugus. Granted July 8, 1921.

Nos.

151. Petition of the city of Boston for license to drive piles at its north-west wharf at Long Island in Boston Harbor. Granted July 14, 1921.
152. Petition of the city of Boston for license to repair and extend the north pier at the Boston landing of the North Ferry in Boston Harbor. Granted July 14, 1921.
153. Petition of the county commissioners of Essex County for approval of plans for reconstructing the bridge over Plum Island River, Newbury, as authorized by chapter 482 of the Acts of 1921. Granted July 28, 1921.
154. Petition of N. E. Lowell for license to build a bulkhead and fill solid in Nantucket Harbor, Nantucket. Granted July 28, 1921.
155. Petition of the county commissioners of Middlesex County for license to construct an embankment and culvert in and over Martins Pond, in North Reading. Granted July 28, 1921.
156. Petition of the city of Boston, by its commissioner of public works, for license to build structures, drive piles, and to dredge in Roxbury Canal, in Boston. Granted Aug. 8, 1921.
157. Petition of the City Fuel Company for license to build a pile wharf on Weymouth Fore River, in Quincy. Granted Aug. 17, 1921.
158. Petition of Edward H. R. Green for license to build a pile wharf and platform in Buzzards Bay at Round Hill, Dartmouth. Granted Aug. 17, 1921.
159. Petition of the Western Union Telegraph Company of New York for license to lay and maintain a submarine cable in Beverly Harbor, in Beverly and Salem. Granted Aug. 17, 1921.
160. Petition of the Lewis Wharf Company for license to build a sea wall and fill solid at its wharf property in Boston Harbor, Boston. Granted Sept. 16, 1921.
161. Petition of the Haverhill Electric Company for license to build a sea wall, drive piles and fill solid in Merrimack River at Haverhill. Granted Sept. 21, 1921.
162. Petition of the New England Confectionery Company for license to drive piles in Fort Point Channel, in Boston. Granted Sept. 23, 1921.
163. Petition of the Point of Pines Trust, Alden A. Mills, trustee, for license to dredge and fill solid in Pines River, Revere and Saugus. Granted Sept. 23, 1921.
164. Petition of the city of Boston for license to lay and maintain a submarine cable in Fort Point Channel at Dover Street bridge, in Boston. Granted Oct. 3, 1921.
165. Petition of Sydney E. Hutchinson for license to build pile pier and float in Massachusetts Bay at Beverly Farms, in Beverly. Granted Oct. 3, 1921.

Nos.

166. Petition of the Boston & Maine Railroad for license to repair and strengthen its bridge No. 10 on Mill Creek, in Chelsea. Granted Oct. 3, 1921.
167. Petition of John S. Coy for license to build and maintain a pile and timber bulkhead and fill solid in Acushnet River at Popes Island, in New Bedford. Granted Oct. 3, 1921.
168. Petition of the Boston Consolidated Gas Company for license to construct and maintain a pile and timber bulkhead and fill solid in Roxbury Canal, in Boston. Granted Oct. 17, 1921.
169. Petition of the Glendale Coal Company for license to extend its wharf on piles, and to dredge the south channel of Mystic River, in Boston. Granted Oct. 17, 1921.
170. Petition of the General Electric Company for license to build a pile wharf and a bulkhead, to fill solid and dredge in Malden River, Everett. Granted Oct. 24, 1921.
171. Petition of the Eastern Massachusetts Street Railway Company for license to lay and maintain four submarine cables in Merrimack River, Haverhill. Granted Oct. 24, 1921.
172. Petition of the city of Boston, by its commissioner of public works, for license to surface the beach at Old Harbor, in South Boston. Granted Oct. 24, 1921.
173. Petition of the city of Boston, by its commissioner of public works, for license to strengthen the upstream pier of Dover Street bridge on Fort Point Channel, Boston. Granted Oct. 24, 1921.
174. Petition of the Russell Sim Tanning Company for license to build a sea wall, a bulkhead, and to fill solid in Salem Harbor, Salem. Granted Oct. 25, 1921.
- 174a. Petition of David M. Little for license to build a pile and timber bulkhead and to fill solid in Salem Harbor, Salem. Granted Oct. 25, 1921.
175. Petition of the city of Boston, by its commissioner of public works, for license to dump snow and ice into tidewater in Boston. Granted Oct. 28, 1921.
176. Petition of the board of trustees of the Boston Elevated Railway Company for license to dump snow and ice into tidewaters of Boston, Cambridge and Chelsea. Granted Oct. 28, 1921.
177. Petition of the Edison Electric Illuminating Company of Boston for license to build a bulkhead and pile wharf, to fill solid and dredge in Weymouth Fore River, Weymouth. Granted Oct. 28, 1921.
178. Petition of Edward H. R. Green for license to build a pile wharf and drive piles in Buzzards Bay at Round Hill, in Dartmouth. Granted Oct. 28, 1921.
179. Petition of Amey D. S. Peters for license to build a wharf in Mat-tapoisett Harbor, Mattapoisett. Granted Oct. 28, 1921.
180. Petition of the Boston & Maine Railroad for license to maintain a 7-conductor submarine cable in Saugus River at bridge No. 15, in Lynn and Saugus. Granted Nov. 4, 1921.

Nos.

181. Petition of the Boston & Maine Railroad for license to maintain submerged pipe lines and cables in Charles and Millers rivers, in Boston and Cambridge. Granted Nov. 4, 1921.
182. Petition of the Boston & Maine Railroad for license to maintain two 7-conductor submarine cables in Mystic River at drawbridge No. 7, in Somerville, and one 7-conductor submarine cable at drawbridge No. 8 in Mystic River, in Somerville and Medford. Granted Nov. 4, 1921.
183. Petition of the Boston & Albany Railroad, the New York Central Railroad Company, lessee, to maintain three telegraph cables and one telephone cable in Mystic River at bridge G. J. 4.15, in Somerville and Everett. Granted Nov. 4, 1921.
184. Petition of the Boston & Albany Railroad, the New York Central Railroad Company, lessee, to maintain an electric light cable and a Western Union cable in Chelsea Creek at bridge G. J. 7.43, in Boston and Chelsea. Granted Nov. 4, 1921.
185. Petition of the Boston & Albany Railroad, the New York Central Railroad Company, lessee, for license to maintain a submarine cable in Broad Canal at bridge G. J. 1.77, in Cambridge. Granted Nov. 4, 1921.
186. Petition of the Boston & Albany Railroad, the New York Central Railroad Company, lessee, for license to maintain a submarine cable in Charles River at bridge G. J. 0.33, in Boston and Cambridge. Granted Nov. 4, 1921.
187. Petition of the county commissioners of Essex County for approval of plans for the construction of three culverts in a proposed new highway back of Long Beach, Rockport, as authorized by chapter 218 of the General Acts of 1919, as amended by chapter 157 of the Acts of 1920. Approval signed Nov. 8, 1921.
188. Petition of the Salisbury Beach Associates for license to build and maintain jetties, and a dam at the mouth of the "Pool" in Merrimack River, Salisbury. Granted Nov. 16, 1921.
189. Petition of the New York, New Haven & Hartford Railroad Company for license to fill solid in South Bay, Boston. Granted Nov. 16, 1921.

#### PERMITS.

During the year 52 permits for miscellaneous purposes were granted. The Division also approved 63 permits granted by cities and towns for the construction and maintenance of fish weirs in tide water.

---

#### RECOMMENDATIONS OF THE DEPARTMENT FOR LEGISLATION RELATING TO THE DIVISION OF WATERWAYS AND PUBLIC LANDS.

See pages 105 and 106 of this report.

## APPENDIX.

## RECEIPTS DURING FISCAL YEAR 1921.

*Port of Boston Fund.*

Rent under leases and permits . . . .	\$91,947 21	
Use of Commonwealth Pier 5 . . . .	100,965 72	
Use of Commonwealth Pier 1 . . . .	11,503 94	
Use of Maverick Street property . . . .	720 00	
Use of Hayward's Creek property . . . .	446 00	
Inspection of dumping, Boston Harbor . .	2,495 38	
Dumping at receiving basins . . . .	8,067 23	
License charges . . . . .	7,704 70	
Sundries . . . . .	677 64	
Sale of land and property . . . . .	127,786 79	
	<hr/>	\$352,314 61

*Waterways Fund.*

Inspection of dumping, outside Boston Harbor	\$114 86	
License charges . . . . .	8,130 00	
	<hr/>	8,244 86
Use of State Pier, New Bedford . . . . .		10,988 43

*Income, Division of Waterways and Public Lands.*

Use of Province Lands . . . . .	\$178 70	
Sale of Massachusetts Atlas sheets . . .	530 20	
Certified copies of documents . . . .	49 00	
	<hr/>	757 90
Interest on bank accounts . . . . .		863 57
		<hr/>
		\$373,169 37

## EXPENDITURES FOR DEVELOPMENT AND IMPROVEMENT IN BOSTON HARBOR, 1859-1921, INCLUSIVE.

PAYMENTS.	Boston Harbor.	Commonwealth Flats at East Boston. <sup>1</sup>	Commonwealth Flats at South Boston. <sup>1</sup>	Commonwealth Pier No. 5.	Dry Dock.	Hayward's Creek.	Mystic River.
To Nov. 30, 1920 . . . . .	\$1,638,464 28	\$1,833,893 58	\$6,392,950 43	\$3,986,271 25	\$3,117,401 15	\$384,130 13	\$397,838 78
1921.							
East Boston Tunnel investigation . . . . .	1,303 75	-	-	-	-	-	-
Railroad tracks and roadways, South Boston . . . . .	-	-	14,178 36	-	-	-	-
Dredging and filling . . . . .	-	258,291 92	-	-	-	-	-
Haywards Creek development . . . . .	-	-	-	-	-	1,554 75	-
Extension, East Boston bulkhead . . . . .	-	90,885 73	-	-	-	-	-
Street and pier development . . . . .	-	-	105,053 66	-	-	-	-
Railroad connection, East Boston . . . . .	-	289 09	-	-	-	-	-
Completing dry dock . . . . .	-	-	-	-	45,000 00	-	-
Constructing Commonwealth Pier No. 1 . . . . .	-	-	-	-	-	-	-
Alterations and repairs, Commonwealth Pier No. 5 . . . . .	-	-	-	76,916 24	-	-	-
Boston Harbor, main channel . . . . .	14,520 85 <sup>2</sup>	-	-	-	-	-	1,220 00
Port of Boston Fund (chapter 203, Acts of 1921) . . . . .	-	-	-	-	-	-	-
	\$1,654,288 88	\$2,183,360 32	\$6,512,182 45	\$4,063,187 49	\$3,162,401 15	\$385,684 88	\$399,058 78

<sup>1</sup> Includes cost of Commonwealth Pier No. 6, \$1,067,598.90.<sup>2</sup> Contribution by Quincy Market Cold Storage and Warehouse Company, \$4,000.

EXPENDITURES FOR DEVELOPMENT AND IMPROVEMENT IN BOSTON HARBOR, 1859-1921, INCLUSIVE — *Concluded.*

PAYMENTS.		Malden River. <sup>1</sup>	Chelsea Creek.	Commercial Point, Dorchester Bay.	Commonwealth Pier No. 1, East Boston.	Commonwealth Pier No. 5, Operation and Maintenance.	Commonwealth Pier No. 1, Maintenance.	Maintenance of Other Property of Commonwealth.
To Nov. 30, 1920	.	\$31,000 00	\$60,305 86	\$53,213 10	\$1,114,658 80	\$326,591 02	\$20,114 15	\$196,427 42
1921.								
East Boston tunnel investigation	.	-	-	-	-	-	-	-
Railroad tracks and roadways, South Boston	.	-	-	-	-	-	-	-
Dredging and filling	.	-	-	-	-	-	-	-
Haywards Creek development	.	-	-	-	-	-	-	-
Extension, East Boston bulkhead	.	-	-	-	-	-	-	-
Street and pier development	.	-	-	-	-	-	-	-
Railroad connection, East Boston	.	-	-	-	-	-	-	-
Completing dry dock	.	-	-	-	-	-	-	-
Constructing Commonwealth Pier No. 1	.	-	-	-	3,911 43	-	-	-
Alterations and repairs, Commonwealth Pier No. 5	.	-	-	-	-	-	-	-
Boston Harbor, main channel	.	-	-	-	-	-	-	-
Port of Boston Fund (chapter 203, Acts of 1921)	.	-	-	-	-	11,718 95	12,120 48	59,434 22
		\$31,000 00	\$60,305 86	\$53,213 10	\$1,118,570 23	\$338,309 97	\$32,234 63	\$255,861 64

Grand total, \$20,249,659.38.

<sup>1</sup> Expended by United States government.



APPROPRIATIONS, CONTRIBUTIONS AND EXPENDITURES FOR IMPROVEMENT OF SMALL HARBORS AND CHANNELS WITHIN BOSTON HARBOR, UNDER THE DIRECTION OF THE DEPARTMENT OF PUBLIC WORKS, DIVISION OF WATERWAYS AND PUBLIC LANDS, AND ITS PREDECESSORS, FROM 1893 TO 1921, INCLUSIVE.

LOCALITY.	Character of Work.	Total Appropriation.	Contributions by Municipality or Others.	Total Expenditure.
Cottage Park Channel, Winthrop.	Dredging . . .	\$19,255 71	\$1,000 00	\$20,234 37
Dorchester, easterly shore, Boston.	Dredging . . .	70,363 66	—	70,171 31
Harbor View, Boston . . .	Dredging . . .	10,146 00	—	146 00
Hingham Harbor . . .	Dredging . . .	13,180 69	3,000 00	16,180 69
Houghs Neck Channel, Quincy	Dredging . . .	26,989 58	3,500 00	28,489 58
Island End River, Everett . .	Survey . . .	264 10	—	264 10
Jeffries Point Channel . . .	Dredging . . .	12,961 90	—	2,961 90
Mystic River (near Lawrence and Wiggin's Wharf).	Dredging . . .	5,927 70	—	5,927 70
Neponset River . . .	Dredging . . .	44,732 53	—	44,731 79
Old Harbor Cove . . .	Dredging . . .	9,724 47	—	9,724 47
Orient Heights Channel . . .	Dredging . . .	45,679 15	—	45,323 67
Pleasant Park Yacht Club Channel.	Dredging . . .	3,154 92	—	3,154 92
Point Shirley . . .	Dredging . . .	3,713 37	—	3,713 37
Shirley Gut, Boston and Winthrop.	Dredging . . .	1,906 20	—	1,906 20
South Boston, southerly shore .	Dredging . . .	129,542 12	—	129,542 08
Stony Beach, Hull . . .	Sea wall . . .	11,794 85	—	11,522 02
Weir River, Hull . . .	Dredging . . .	105,963 51	25,000 00	130,963 51
Wessagussett Channel . . .	Dredging . . .	815 20	—	815 20
Weymouth Fore River . . .	Dredging . . .	47,192 02	—	32,267 53
Winthrop Harbor Channels . .	Dredging . . .	41,038 16	700 00	39,783 58
Wollaston Channel . . .	Dredging . . .	45,236 31	3,000 00	47,814 92
		\$649,582 15	\$36,200 00	\$645,638 91

CONTRIBUTIONS AND EXPENDITURES FOR RIVER AND HARBOR WORK  
FROM DEC. 1, 1920, TO NOV. 30, 1921, UNDER CHAPTER 481, ACTS  
OF 1909, AND CHAPTER 91 OF THE GENERAL LAWS.

LOCATION.	Character of Work.	Contributions.	Expenditure.
Acushnet River . . . .	Dredging . . . . .	-	\$42,802 43
Brant Rock, Marshfield . . . .	Jetties . . . . .	-	499 88
East Bay, Osterville . . . . .	Dredging . . . . .	-	3,297 23
Edgartown Harbor . . . . .	Extending channel through beach.	\$300 00	2,620 97
Ellisville Harbor . . . . .	Breakwater . . . . .	-	925 01
Falmouth Inner Harbor . . . . .	Extending jetties . . . . .	-	17,779 23
Glades, North Scituate . . . . .	Sea wall . . . . .	-	6,360 94
Gloucester Harbor . . . . .	Dredging . . . . .	-	17,477 53
Great Ponds . . . . .	Survey . . . . .	-	2,499 99
Herring River . . . . .	Dredging and riprap . . . . .	-	8,578 84
Humarock Beach, Scituate . . . .	Sea wall . . . . .	19,735 37	56,724 56
Hyannisport . . . . .	Removing boulders and dredging.	-	7,194 29
Improvement of rivers and harbors .	General expenses . . . . .	-	3,448 46
Lake Anthony, Oak Bluffs . . . .	Dredging . . . . .	-	341 52
Menamsha Inlet . . . . .	Riprap . . . . .	-	605 92
Nobscusset Harbor, Dennis . . . .	Breakwater repairs . . . . .	-	5,319 67
Oak Bluffs . . . . .	Survey . . . . .	-	184 02
Pamet River . . . . .	Survey . . . . .	-	163 15
Plymouth Harbor . . . . .	Survey . . . . .	-	2,198 60
Scituate Harbor . . . . .	Dredging . . . . .	-	13 00
Taunton River . . . . .	Dredging . . . . .	-	2,674 89
Third Cliff, Scituate . . . . .	Protective work . . . . .	7,313 37	22,148 51
Vineyard Haven Harbor . . . . .	Survey . . . . .	-	354 45
West Bay, Osterville . . . . .	Dredging . . . . .	-	22,117 91
Wild Harbor . . . . .	Jetty extension . . . . .	-	17,638 45
Witchmere Harbor . . . . .	Dredging . . . . .	-	5,195 69
		\$27,348 74	\$249,165 14

APPROPRIATIONS, CONTRIBUTIONS AND EXPENDITURES FROM 1893 TO 1921, INCLUSIVE, FOR RIVER AND HARBOR WORK, UNDER THE DIRECTION OF THE DEPARTMENT OF PUBLIC WORKS, DIVISION OF WATERWAYS AND PUBLIC LANDS, AND ITS PREDECESSORS, TO NOV. 30, 1921 (EXCEPTING BOSTON HARBOR).

LOCALITY.	Character of Work.	Total Appropriation.	Contributions by Municipality or Others.	Total Expenditure.
Acushnet River . . .	Inspection . . .	\$118,764 85	—	\$118,764 85
Allens Harbor, Harwich . .	Surveys . . .	302 00	—	302 00
Allens Pond, Dartmouth . .	Survey . . .	195 95	—	195 95
Annisquam River, Gloucester .	Dredging, removing ledges and riprap.	107,630 63	—	107,260 75
Apponagansett Harbor and River, Dartmouth.	Survey, dredging and stone breakwater.	56,159 59	—	55,786 05
Barnstable Harbor . . .	Survey and dredging	17,392 18	\$1,500 00	18,554 64
Bass River, Beverly . . .	Dredging . . .	25,539 81	55,535 75	81,075 56
Bass River, Dennis and Yarmouth.	Jetties, dredging and survey.	88,089 74	2,500 00	89,104 74
Brant Rock, Marshfield . .	Sea wall . . .	4,703 81	—	4,703 81
Bucks Creek, Chatham . . .	Jetties, survey and dredging.	29,739 06	1,500 00	31,067 74
Buzzards Bay, Falmouth . .	Survey . . .	166 11	—	166 11
Cataumet Harbor and Squeague Pond, Bourne and Falmouth.	Dredging . . .	26,520 68	7,350 00	33,726 77
Centerville River, Barnstable .	Dredging . . .	6,103 22	1,500 00	7,603 22
Cohasset Harbor, Cohasset and Scituate.	Breakwater and dredging.	36,172 55	20,691 88	56,864 43
Concord River, Billerica . .	Removing boulders .	1,514 59	150 00	1,664 59
Connecticut River . . .	Investigation of navigation and surveys.	10,637 04	—	6,970 99
Connecticut River . . .	Improvement . . .	103 63	—	103 63
Connecticut River, Agawam .	Protective work . .	20,396 09	—	18,814 42
Connecticut River, Chicopee .	Survey, wall and riprap.	25,149 02	640 00	25,789 02
Connecticut River, Hadley . .	Protective work and diversion wall.	100,443 65	500 00	97,740 94 <sup>1</sup>
Connecticut River, Hatfield .	Dikes and riprap . .	14,751 82	1,000 00	14,952 57
Connecticut River, Holyoke . .	Marking and lighting old piers.	677 70	—	677 70
Connecticut River, Holyoke . .	Dredging and protective work.	18,815 78	415 00	4,230 78
Connecticut River, Northampton.	Protective work . .	1,525 80	—	1,524 20
Connecticut River, South Hadley.	Wall . . .	6,406 36	1,000 00	7,379 58
Connecticut River, West Springfield.	Protective work . .	12,002 78	—	11,919 27 <sup>2</sup>
Conservation of waters . . .	Investigation . . .	40,999 96	—	38,766 22
Cotuit Harbor, Barnstable . .	Dredging and survey	60,248 02	2,000 00	59,219 91
Cuttyhunk Harbor, Gosnold . .	Jetties and dredging .	61,828 25	9,000 00	70,754 18
Deacons Pond Harbor, Falmouth. <sup>3</sup>	— . .	—	—	—

<sup>1</sup> From 1888, inclusive.<sup>2</sup> From 1891, inclusive.<sup>3</sup> See Falmouth Inner Harbor.

APPROPRIATIONS, ETC. — *Continued.*

LOCALITY.	Character of Work.	Total Appropriation.	Contributions by Municipality or Others.	Total Expenditure.
Duxbury Bay and Harbor . . .	Dredging . . .	\$27,798 79	-	\$27,798 79
East Bay, Osterville . . .	Jetties, dredging and removing scows.	61,258 79	\$10,000 00	70,924 23
Edgartown Harbor . . .	Survey and making channel	2,526 62	300 00	2,826 62
Ellisville Harbor . . .	Dredging . . .	16,069 83	-	16,069 83
Essex County beaches . . .	Survey . . .	1,000 00	-	1,000 00
Essex River . . .	Dredging . . .	5,000 00	-	5,000 00 <sup>1</sup>
Fall River Harbor . . .	Improvement . . .	350,290 54	-	1,130 18
Falmouth Heights, Falmouth . .	Sea wall . . .	37,566 83	13,000 00	50,566 83
Falmouth Inner Harbor . . .	Dredging, jetties and wall.	85,317 80	14,000 00	99,317 80
Gloucester Harbor, Gloucester . .	Dredging and removing ledges.	99,744 74	7,500 00	107,244 74
Great Ponds . . .	Survey . . .	2,500 00	-	2,499 99
Green Harbor, Marshfield . . .	Jetties, dredging and survey.	90,804 54	-	76,466 85
Gun Rock Point, Hull . . .	Breakwater . . .	48,096 11	10,000 00	58,096 11
Harbor Cove, Gloucester . . .	Survey and dredging	18,528 73	866 00	19,394 73
Herring Creek, Scituate . . .	Survey . . .	253 76	-	253 76
Herring River, Harwich . . .	Jetties and dredging .	48,313 18	2,500 00	50,168 88
Herring River, Wellfleet . . .	Dikes and ditches .	11,832 74	10,000 00	21,800 73
Housatonic River, Sheffield . . .	Survey . . .	2,011 29	-	2,011 29
Hull . . .	Sea wall and survey .	25,258 32	8,882 06	34,140 38
Humarock Beach, Scituate . . .	Survey . . .	37,639 19	19,735 37	56,960 63
Hyannisport, Barnstable . . .	Survey and break-water.	57,183 11	2,500 00	59,683 11
Improvement of rivers and harbors.	General expenses .	15,068 52	-	15,068 52
Ipswich River, Ipswich . . .	Jetty, wall, riprap and dredging.	47,325 48	1,000 00	48,318 92
Kings Beach, Swampscott . . .	Removal of obstruction.	166 41	-	166 41
Lake Anthony, Oak Bluffs . . .	Jetties and dredging .	63,695 74	2,000 00	62,486 70
Lake Quannapowitt, Wakefield . .	Investigation . . .	1,004 21	-	345 32
Lewis Bay, Barnstable . . .	Survey and dredging	29,211 64	-	28,963 21
Little Harbor, Marblehead . . .	Dredging . . .	8,666 16	2,500 00	11,166 16
Little River, Gloucester . . .	Survey . . .	862 93	-	862 93
Lobster Cove, Gloucester . . .	Dredging . . .	33,047 26	1,500 00	34,547 26
Lynn Harbor, anchorage basin	Survey and dredging	121,789 29	5,200 00	121,588 07
Lynn Harbor and Saugus River	Dredging and filling .	90,942 35	37,500 00	128,442 35
Manchester Harbor . . .	Survey, jetties and dredging.	68,100 67	43,500 00	109,078 51
Menamsha Inlet, Chilmark and Gay Head.	Jetties, dredging and sea wall.	64,029 26	700 00	64,625 61

<sup>1</sup> Expended by United States government.

APPROPRIATIONS, ETC. — *Continued.*

LOCALITY.	Character of Work.	Total Appropriation.	Contributions by Municipality or Others.	Total Expenditure.
Merrimack River . . .	Investigation and survey.	\$1,308 50	—	\$1,208 50
Mill River, Gloucester . . .	Survey and dredging	24,632 86	\$300 00	24,999 59
Mitchells River, Chatham . . .	Survey . . .	322 96	—	322 96
Nantucket Harbor . . .	Dredging . . .	42,058 63	1,000 00	42,779 78
New Bedford Harbor . . .	Dredging . . .	1,409 76	—	1,409 76
New Bedford Harbor . . .	Pier, shed and dredging.	371,899 77	13,446 74 <sup>1</sup>	385,346 51
New Bedford State Pier . . .	Improvement . . .	73,461 00	—	73,436 38
New Bedford State Pier . . .	Operation and maintenance.	53,274 33	—	47,765 09
Newburyport Harbor . . .	Survey . . .	115 97	—	115 97
Nobscusset Harbor, Dennis . . .	Breakwater, dredging and riprap.	37,194 16	1,200 00	29,033 61
North River, Marshfield . . .	Surveys and removing rocks.	6,858 75	1,800 00	8,658 75
North River, Salem . . .	Survey . . .	704 52	—	704 52
Oak Bluffs . . .	Removing rocks . . .	632 45	—	594 95
Oak Bluffs . . .	Sea wall . . .	26,651 37	2,500 00	29,151 37
Onset Bay, Wareham . . .	Survey and dredging	14,295 89	1,000 00	15,295 89
Orleans . . .	Survey . . .	104 18	—	104 18
Pamet River, Truro . . .	Survey, dredging and repairing jetties.	191,259 95	1,200 00	192,459 95
Paskamansett River, Dartmouth.	Dredging and jetty . . .	5,227 68	—	5,227 68
Penikese Island, Gosnold . . .	Pile wharf and survey	5,300 00	—	5,192 95
Plum Island River, Newbury and Newburyport.	Survey . . .	983 31	—	983 31
Plymouth Harbor . . .	Dredging . . .	178,413 59	71,794 55	223,705 87 <sup>2</sup>
Popponeset Bay . . .	Dredging . . .	46,252 33	—	46,252 33
Powow River . . .	Dredging channel and riprapping wall.	502 94	—	502 94
Province Lands, Provincetown	Reclamation . . .	92,000 00	—	89,128 56
Provincetown Harbor . . .	Survey . . .	1,217 78	—	1,217 78
Quansett Harbor, Orleans . . .	Survey . . .	195 88	—	194 50
Quicks Hole, Gosnold . . .	Survey . . .	500 00	—	—
Red Brook Harbor, Bourne . . .	Removing pier . . .	275 00	—	275 00
Revere . . .	Stone breakwater . . .	60,407 09	—	60,397 93
Rock Harbor, Orleans . . .	Dredging . . .	12,108 25	400 00	12,492 71
Rockport Harbor . . .	Dredging and removing rocks.	14,429 32	—	13,749 02
Salem Harbor . . .	Survey . . .	3,050 05	—	1,050 05
Salt Pond River, Eastham . . .	Survey . . .	210 11	—	210 11
Salters Point, Dartmouth . . .	Breakwater . . .	13,509 59	1,500 00	15,009 59

<sup>1</sup> Paid by surety company.<sup>2</sup> \$57,000 expended under direction of United States government.

APPROPRIATIONS, ETC. — *Concluded.*

LOCALITY.	Character of Work.	Total Appropriation.	Contributions by Municipality or Others.	Total Expenditure.
Sandwich Harbor . . .	Dredging channel, riprap and jetties.	\$80,579 84	—	\$80,579 84
Saugus River, Lynn and Saugus	Survey and dredging	19,206 64	\$2,000 00	20,845 17
Scituate . . . . .	Sea walls and riprap .	84,912 19	14,548 37	98,355 69
Scituate Harbor . . .	Dredging . . . . .	96,676 92	8,300 00	104,976 92
Scorton Harbor, Sandwich	Jetty and dredging .	19,426 39	500 00	17,774 34
Sesuit Harbor, Dennis . .	Jetty . . . . .	28,067 85	1,500 00	24,555 10
Sippican Harbor, Marion .	Survey . . . . .	7 17	—	7 17
Smith's Cove, Gloucester .	Survey and dredging	5,163 07	—	5,163 02
South River, Salem . . .	Dredging . . . . .	10,523 65	3,000 00	13,462 66
South Watuppa Pond, Fall River.	Fenders and excavation.	203 42	—	203 42
Stage Harbor, Chatham . .	Dikes and survey .	10,803 01	—	10,803 01
Taunton River . . . . .	Survey and dredging	8,207 88	—	4,635 40
Taunton-Brockton waterway .	Investigation . . .	5,388 46	—	5,278 18
Taunton River-Boston Harbor Canal.	Survey . . . . .	10,000 00	—	9,932 75
Taunton River-Massachusetts Bay Canal.	Survey . . . . .	11,786 71	—	11,786 71
Vineyard Haven Harbor . .	Repairing sea wall .	9,564 51	2,380 50	11,945 01
Vineyard Haven Harbor, Tisbury.	Breakwater and dredging.	45,089 48	1,000 00	45,518 25
Waquoit Bay, Falmouth . .	Breakwater wall and bulkhead.	29,583 79	2,000 00	31,285 40
Wareham River . . . . .	Survey and dredging	37,349 27	5,000 00	42,349 27
Warrens Cove, Plymouth . .	Sea wall . . . . .	14,468 97	9,713 98	24,481 22
Watch Hill, Chatham . . .	Survey and riprap .	15,020 47	—	14,968 75
Wellfleet Harbor . . . . .	Survey and dredging	16,867 22	1,500 00	17,600 29
West Bay, Barnstable and Osterville.	Jetties and dredging .	74,105 32	10,000 00	84,067 95
West Falmouth Harbor, Falmouth.	Dredging . . . . .	25,655 31	—	24,386 18
West Harwich . . . . .	Survey . . . . .	9 00	—	9 00
Westfield River . . . . .	Survey . . . . .	6,296 90	—	6,037 29
Wild Harbor, Falmouth . . .	Jetty and dredging .	33,310 04	5,000 00	33,253 17
Winthrop shore . . . . .	Sea walls and protective work.	17,058 48	3,000 00	20,058 48
Witchmere Harbor, Harwich .	Jetties and dredging .	34,107 80	1,000 00	34,965 10
Woods Hole, Great Harbor, Falmouth.	Dredging . . . . .	5,468 86	1,500 00	6,968 86
Wrecks . . . . .	Removal from tide-water.	65,943 49	—	7,131 91
Yarmouthport Harbor . . .	Survey . . . . .	88,977 37	7,000 00	95,977 37
		\$4,656,482 95	\$473,550 20	\$4,592,941 04

## FEDERAL APPROPRIATIONS AND EXPENDITURES.

Federal appropriations and expenditures for improvement of rivers and harbors in Massachusetts from the establishment of the government to the close of the fiscal year ending June 30, 1921, as shown in the following tables, furnished by the Chief of Engineers, U. S. A.: —

TABLE No. 1. — *Localities at Present under Improvement.*

[Compiled from the annual report of the Chief of Engineers, U. S. A., for the fiscal year ending June 30, 1921.]

LOCALITY.	Expenditures.	Appropriations.
Newburyport Harbor . . . . .	\$494,064 44	\$494,100 00
Merrimack River . . . . .	404,401 95	414,466 72 <sup>1</sup>
Sandy Bay, Cape Ann, harbor of refuge . . . . .	1,941,478 00	1,950,000 00
Gloucester Harbor . . . . .	538,183 00	542,083 00
Beverly Harbor . . . . .	49,125 00	110,625 00
Salem Harbor . . . . .	71,368 66	71,368 66 <sup>2</sup>
Lynn Harbor . . . . .	471,000 77	476,837 00
Mystic River (upper portion) <sup>3</sup> . . . . .	305,515 23	336,050 00
Mystic River (below mouth of Island End River) <sup>3</sup> . . . . .		
Malden River . . . . .	149,891 55	149,950 00
Boston Harbor <sup>4</sup> . . . . .	12,604,864 31	12,675,827 58
Dorchester Bay and Neponset River . . . . .	95,008 00	95,233 00
Weymouth Fore River . . . . .	500,974 77	573,750 00
Weymouth Back River . . . . .	26,500 00	27,000 00
Plymouth Harbor . . . . .	363,868 69	391,959 80
Provincetown Harbor . . . . .	348,062 72	362,162 97
Pollock Rip Shoals, Nantucket Sound . . . . .	656,863 16	815,000 00
Nantucket Harbor of Refuge . . . . .	576,361 88	591,473 50
New Bedford and Fairhaven harbors . . . . .	769,310 00	769,610 00
Taunton River . . . . .	203,782 79	210,189 18
Fall River Harbor . . . . .	397,388 33	412,411 49
Totals . . . . .	\$20,968,013 25	\$21,470,097 90

<sup>1</sup> Of original amount appropriated, \$900 was carried to the surplus fund of the treasury from previous project.

<sup>2</sup> Of original amount appropriated, \$1,131.34 was carried to the surplus fund of the treasury.

<sup>3</sup> Now consolidated as one improvement.

<sup>4</sup> Including Chelsea Creek.

TABLE NO. 2. — *Localities in which Work is not now in Progress.*

[Compiled from data furnished by the United States Treasury Department and the Chief of Engineers, U. S. A.]

LOCALITY.	Expenditures.	Appropriations.
Bass River . . . . .	\$20,150 34	\$20,150 41
Buzzards Bay Harbor . . . . .	2,500 00	2,500 00
Canapitset Channel . . . . .	5,312 54	9,800 00
Chatham Harbor . . . . .	12,171 36	13,732 79
Cohasset Harbor . . . . .	10,000 00	10,000 00
Duxbury Harbor . . . . .	37,000 00	37,000 00
East Dennis Breakwater . . . . .	7 57	1,500 00
Edgartown Harbor . . . . .	25,000 00	25,000 00
Essex River . . . . .	30,000 00	30,000 00
Hingham Harbor . . . . .	38,316 58	39,000 00
Hyannis Harbor . . . . .	221,787 75	221,267 07
Ipswich River . . . . .	5,617 91	7,500 00
Kingston Harbor . . . . .	8,940 09	10,000 00
Little Harbor, Woods Hole . . . . .	18,000 00	18,000 00
Manchester Harbor . . . . .	23,985 57	24,300 00
Marblehead Harbor . . . . .	833 42	1,900 00
Marthas Vineyard Harbor . . . . .	7,000 00	7,000 00
Powow River . . . . .	50,940 72	51,000 00
Rockport Harbor . . . . .	91,229 25	91,232 57
Scituate Harbor . . . . .	104,590 98	104,680 00
Town River . . . . .	37,577 41	37,577 41
Vineyard Haven Harbor . . . . .	55,387 35	60,000 00
Wareham Harbor . . . . .	95,997 30	96,236 00
Wellfleet Harbor . . . . .	11,365 57	16,000 00
Westport Harbor and River . . . . .	3,000 00	3,000 00
Winthrop Harbor . . . . .	9,000 00	9,000 00
Woods Hole Channel . . . . .	343,599 92	* 344,000 00
Totals . . . . .	\$1,269,311 63	\$1,291,376 25

RECAPITULATION.	Expenditures.	Appropriations.
Total of Table No. 1 . . . . .	\$20,968,013 25	\$21,470,097 90
Total of Table No. 2 . . . . .	1,269,311 63	1,291,376 25
Grand totals . . . . .	\$22,237,324 88	\$22,761,474 15



EXPENDITURES ON BOSTON HARBOR AND ITS TRIBUTARIES TO  
JUNE 30, 1921.

{The tributaries given are those now under improvement, and do not include tributaries heretofore improved.}

LOCALITY.	Expenditures.	Appropriations.
Boston Harbor proper <sup>1</sup> . . . . .	\$12,604,864 31	\$12,675,827 58
Mystic River (below mouth of Island End River) <sup>2</sup> . . . . .	} 305,512 23	336,050 00
Mystic River (upper portion) <sup>2</sup> . . . . .		
Malden River . . . . .	149,891 55	149,950 00
Totals . . . . .	\$13,060,268 09	\$13,161,827 58

<sup>1</sup> Including Chelsea Creek.

<sup>2</sup> Now one improvement.

CONTRACTS MADE BY THE DEPARTMENT OF PUBLIC WORKS, DIVISION  
YEAR ENDING

Contract No.	Work.	Contractor.	Date.
8	West Bay, Barnstable, dredging .	Bay State Dredging and Contracting Company.	July 1, 1920
14	Acushnet River, dredging . .	Bay State Dredging and Contracting Company.	Aug. 2, 1920
17	Winthrop Harbor, dredging . .	Bay State Dredging and Contracting Company.	Sept. 10, 1920
21	Third Cliff, Scituate, riprap . .	Bay State Dredging and Contracting Company.	Mar. 11, 1921
22	North Scituate, sea wall . . .	Arthur J. Mitchell . . .	Sept. 14, 1921
23	Humarock Beach, Scituate, concrete sea wall.	John Williams & Co. . .	May 27, 1921
24	East Boston, dredging and filling .	Atlantic, Gulf and Pacific Company.	May 11, 1921
25	East Boston, building bulkhead .	William L. Miller Company .	May 11, 1921
26	Dredging and riprap: Witchmere Harbor . . . . Oak Bluffs . . . . Menamsha Creek . . . . Falmouth Inner Harbor . . . . Wild Harbor, Falmouth . . . . Herring River . . . . Hyannisport . . . . Lake Anthony . . . . West Bay, Barnstable . . . .	William E. Burke . . . .	May 13, 1921

OF WATERWAYS AND PUBLIC LANDS, AND IN FORCE DURING THE  
Nov. 30, 1921.

Condition of Work.	Contract Prices.	Amount paid during Year ending Nov. 30, 1921.	Total paid to Nov. 30, 1921.	Estimated Amount of Contract.
Completed Jan. 13, 1921.	Dredging, 78 cents per cubic yard, measured in scows. Excavating boulders, \$20 per cubic yard.	\$20,263 39	\$27,661 14	\$31,200 00
Completed Feb. 19, 1921.	Dredging, 52 cents per cubic yard, measured in scows. Excavating boulders, \$16 per cubic yard.	39,583 98	112,180 54	112,320 00
Completed March 26, 1921.	Dredging, 47.9 cents per cubic yard, scow measurement.	12,499 03	12,499 03	12,100 00
Completed April 27, 1921.	For furnishing stone and depositing it in place, \$5.80 per ton.	21,527 98	21,527 98	15,000 00
In progress . . .	For constructing new wall, \$11 per cubic yard of concrete measured in completed work. For constructing concrete footings under existing wall, \$4 for each linear foot of completed footing. For excavating, placing and grading of material, \$1 per cubic yard of material measured in place before excavating.	5,840 71	5,840 71	13,375 00
Completed Oct. 7, 1921.	For furnishing materials and constructing main wall and steps, \$12.50 for each cubic yard of concrete measured in completed work. For furnishing materials and constructing each spur jetty, \$150 for each complete jetty 25 feet in length. For furnishing material and constructing concrete slab and cut-off wall at Marshfield Avenue, \$400 for completed work.	55,564 75	55,564 75	54,800 00
In progress . . .	Dredging areas at East Boston and depositing material, 32.94 cents per cubic yard. Dredging and depositing material brought from other portions of harbor, 22 cents per cubic yard.	221,674 25	221,674 25	351,400 00
Completed Aug. 26, 1921.	For building bulkhead with one spur shore, \$21.44 per lineal foot. For building bulkhead with two spur shores, \$22.44 per lineal foot.	56,157 08	56,157 08	56,000 00
{ Completed, Wild Harbor, July 29, 1921; Witchmere, Oct. 23, 1921; Herring River, Sept. 17, 1921; Oak Bluffs sea wall, Oct. 23, 1921; Falmouth Inner Harbor, Nov. 9, 1921. Work in progress in other localities.	{ Unit prices . . . . . }	4,195 52	4,195 52	4,420 00
		-	-	7,425 00
		-	-	7,950 00 <sup>1</sup>
		-	-	1,435 00 <sup>2</sup>
		467 50	467 50	550 00
		5,470 19	5,470 19	6,975 00
		7,539 72 <sup>1</sup>	7,539 72 <sup>1</sup>	7,570 00 <sup>1</sup>
		-	-	5,100 00 <sup>3</sup>
		6,765 39 <sup>1</sup>	6,765 39 <sup>1</sup>	8,200 00 <sup>1</sup>
		-	-	2,250 00 <sup>4</sup>
		-	-	9,752 50
		-	-	5,964 00
			\$24,438 32	\$67,591 50

<sup>1</sup> Dredging.<sup>2</sup> Jetty repairs.<sup>3</sup> Riprap.<sup>4</sup> Removing boulders.

CONTRACTS MADE BY THE DEPARTMENT OF PUBLIC WORKS, DIVISION  
YEAR ENDING

Contract No.	WORK.	Contractor.	Date.
27	Commonwealth Pier No. 5, South Boston, coal for heating plant.	Metropolitan Coal Company .	June 15, 1921
28	Battery Wharf, dredging opposite .	Bay State Dredging and Contracting Company.	June 22, 1921
29	Fish Pier, South Boston, repaving a portion.	B. E. Grant Company . . .	July 28, 1921
30	Wollaston Beach, dredging . . .	W. S. Rendle . . . . .	Aug. 1, 1921
31	Cottage Park, Winthrop, dredging .	Bay State Dredging and Contracting Company.	Aug. 30, 1921
32	Old Harbor, South Boston, dredging	Bay State Dredging and Contracting Company.	Aug. 30, 1921
34	Wild Harbor, Falmouth, and Nobsusset Harbor, Dennis, break-water extension and repair.	Calvin G. Fletcher . . . .	Aug. 15, 1921
36	Fresh Water Cove, Gloucester, dredging.	Bay State Dredging and Contracting Company.	Aug. 15, 1921
37	Falmouth Inner Harbor, extending west jetty.	Bay State Dredging and Contracting Company.	Sept. 6, 1921
38	Bullock Street extension and Cypher Street paving.	B. E. Grant Company . . .	Aug. 30, 1921
39	East Boston bulkhead . . . .	William L. Miller Company .	Sept. 14, 1921
40	Taunton River, dredging . . .	Bay State Dredging and Contracting Company.	Nov. 3, 1921
41	Oak Bluffs sea wall and Witchmere Harbor jetty, riprap protection.	T. A. Scott Company, Inc. .	Nov. 18, 1921

OF WATERWAYS AND PUBLIC LANDS, AND IN FORCE DURING THE  
Nov. 30, 1921 — *Concluded.*

Condition of Work.	Contract Prices.	Amount paid during Year ending Nov. 30, 1921.	Total paid to Nov. 30, 1921.	Estimated Amount of Contract.
Completed . .	\$8.42 per gross ton . . . . .	\$10,688 71	\$10,688 71	-
Completed Aug. 30, 1921.	Dredging between harbor line and main ship channel, 55 cents per cubic yard, scow measurement. Dredging in dock, 50 cents per cubic yard, scow measurement. Removing boulders, \$20 per cubic yard.	13,859 35	13,859 35	\$12,420 00
Completed Sept. 27, 1921.	Unit prices . . . . .	27,182 73	27,182 73	24,431 00
Completed Nov. 26, 1921.	Dredging, 42.5 cents per cubic yard, scow measurement. Removing boulders, \$3 per cubic yard.	12,796 20	12,796 20	12,962 50
Completed Oct. 17, 1921.	Dredging, 51 cents per cubic yard. Removing boulders, \$15 per cubic yard.	10,073 67	10,073 67	12,469 20
Completed Oct. 14, 1921.	Dredging, 53 cents per cubic yard, scow measurement. Removing boulders, \$15 per cubic yard.	9,277 12	9,277 12	7,435 00
Completed Nov. 27, 1921.	For furnishing and depositing stone in breakwater at Nobscusset Harbor, \$6 per ton. For furnishing stone and constructing extension to breakwater at Wild Harbor, \$6 per ton.	4,868 50 9,623 77	4,868 50 9,623 77	16,800 00
Completed Sept. 22, 1921.	Dredging, 50 cents per cubic yard, scow measurement. Removing boulders, \$12 per cubic yard.	15,477 72	15,477 72	11,100 00
Completed Oct. 1, 1921.	For furnishing and placing stone riprap and chips, \$3.85 per ton.	16,880 33	16,880 33	15,400 00
In progress . .	Unit prices . . . . .	24,968 75	24,968 75	61,055 65
In progress . .	\$27.71 for each linear foot of completed bulkhead.	32,750 50	32,750 50	52,649 00
In progress . .	Dredging, 72 cents per cubic yard, scow measurement. Removing boulders, \$22 per cubic yard.	2,512 46	2,512 46	23,040 00
In progress . .	For furnishing and placing stone chips and riprap at Oak Bluffs, \$6.45 per ton. For furnishing and placing stone chips at Witchmere Harbor, \$6.95 per ton.	-	-	8,535 00



# INDEX.

## DEPARTMENT OF PUBLIC WORKS.

	PAGE
Organization, under Chapter 16, General Laws . . . . .	3
Personnel . . . . .	4
Recommendations for Legislation . . . . .	102-106
Division of Highways . . . . .	102
Division of Waterways and Public Lands . . . . .	105, 106
Registry of Motor Vehicles . . . . .	103, 104

## DIVISION OF HIGHWAYS.

Advertising Signs and Devices within the Public View . . . . .	95
Rules and Regulations . . . . .	96-99
Scenic Highways . . . . .	100
Appropriations . . . . .	9-14
Bridges . . . . .	64
Alterations, Repairs and Extensions completed in 1921 . . . . .	65
Built or contracted for . . . . .	64
Contemplated Bridges and Structures . . . . .	65
Examinations, etc., at Request of Cities and Towns . . . . .	66
Examinations, etc., in Accordance with Certain Legislation . . . . .	67
Examinations, etc., at Request of County Commissioners . . . . .	67
Examinations and Reports by Direction of the Department . . . . .	68
Merrimack River, between Newburyport and Salisbury . . . . .	68
Draw Openings . . . . .	68
Plans, Studies or Estimates . . . . .	65
Taunton Great River, between Fall River and Somerset . . . . .	69
Draw Openings . . . . .	69
Construction and Repair of Ways not State Highways in Certain Towns . . . . .	82
Expenditures in Various Counties and Towns under Contracts made previous to 1921 . . . . .	83
Co-operative Work, Supervision of Certain Expenditures by Cities, Towns and Counties . . . . .	16
Expenditures, Summary for the Year . . . . .	14, 15
Federal Aid in Constructing Highways . . . . .	56
Apportionments to Massachusetts . . . . .	59
Appropriations . . . . .	59
Federal Highway Act of 1921 . . . . .	107-115
Legislation . . . . .	56-58
Mileage in Various Counties . . . . .	60
Projects . . . . .	61-63
Total Mileage of Road Projects . . . . .	63
General Statement as to Surveys, Plans, Estimates and Other Work during the Year . . . . .	17
Engineering Advice to Municipal Authorities . . . . .	18
Highways, Length of Construction, etc. . . . .	17
Resurfacing and Widening of State Highways . . . . .	18
Roads constructed in 1921 . . . . .	18
State Highways . . . . .	17
Surveys, Estimates and Designs . . . . .	17
Trees on State Highways . . . . .	18

	PAGE
Hearings . . . . .	16
Highway Improvements authorized by Special Acts . . . . .	52
Contracts entered into during the Year for Town Ways . . . . .	52
Expenditures . . . . .	52
Highways in the Five Western Counties . . . . .	80
Expenditures in Various Localities . . . . .	80, 81
Maintenance and Improvement of Public Ways, exclusive of State Highways, in Certain Towns . . . . .	84
Expenditures in Various Counties and Towns . . . . .	84, 85
Meetings . . . . .	16
Permits . . . . .	18
Petitions . . . . .	16, 19
Repair and Improvement of Public Ways, exclusive of State Highways, in Certain Towns . . . . .	86
Allotments by the State and Towns . . . . .	87-89
Expenditures in Various Counties and Towns . . . . .	90-93
Towns where Work has been contracted for . . . . .	88, 89
State Aid in keeping Certain Highways open during the Winter Months . . . . .	94
Snow Fences erected . . . . .	94
State Highways . . . . .	19
Appropriations . . . . .	9
Care of Shade Trees . . . . .	136
Construction . . . . .	17
Completed during the Year . . . . .	18
Expenditures in Various Counties, Cities and Towns . . . . .	20
Construction and Resurfacing . . . . .	22
Contracts entered into during the Year . . . . .	22
Expenditures during the Year . . . . .	22
Contract Prices in 1921 . . . . .	132-135
Contracts signed during the Year . . . . .	16
Highways laid out or contracted for and Construction Expenditures to Dec. 1, 1921 . . . . .	116-131
Maintenance . . . . .	28, 36, 43-51
Average Expenditure per Mile in 1921, etc. . . . .	44-51
Expenditures in Various Counties, Cities and Towns . . . . .	28, 36
Resurfacing and Widening . . . . .	18
Work done during the Year . . . . .	18
Town and County Ways, Construction and Repairs . . . . .	70
Contributions by the State, Towns and Counties . . . . .	71
Counties and Towns where Work has been contracted for . . . . .	71
Expenditures in Various Counties and Towns . . . . .	75
Type of Road and Length contracted for . . . . .	71

#### REGISTRY OF MOTOR VEHICLES.

Abstracts for Fiscal Years 1920 and 1921 . . . . .	147
Aircraft . . . . .	155
Appropriated or available for 1921 . . . . .	154
Conference of Motor Vehicle Administrators . . . . .	146
Court Records . . . . .	147
Examination Places . . . . .	149
Examinations for Licenses . . . . .	148
Examiners Work, 1919-21, inclusive . . . . .	149
Expenditures for the Fiscal Year 1921 . . . . .	153
Fines paid in 1920 and 1921 . . . . .	148
Headlighting . . . . .	150



	PAGE
Increase of Work . . . . .	155
Inspectors . . . . .	147
Investigations and Prosecutions, 1920-21 . . . . .	147
Motor Vehicle Deaths, Injuries, Collisions . . . . .	141
Children killed and injured, Number in 1920 and 1921 . . . . .	142
Collisions, Number in 1920 and 1921 . . . . .	142
Persons killed and injured, Number in 1920 and 1921 . . . . .	141
Persons killed and injured, 1914-21, inclusive . . . . .	146
Personnel of Examining and Investigating Section . . . . .	150
Receipts . . . . .	152
Registrations, Deaths, Accidents, Suspensions, etc., Comparative State- ment, 1908-21, inclusive . . . . .	144
Registrations, Licenses, Fees . . . . .	151
Passenger Cars, Commercial Vehicles and Motor Cycles, 1916-21, inclusive . . . . .	152
Suspensions and Revocations . . . . .	142
According to Nature of Offences . . . . .	144
Analysis . . . . .	143
Number in 1920 and 1921 . . . . .	143
Used-car Section . . . . .	150
Volume of Work handled . . . . .	151

## DIVISION OF WATERWAYS AND PUBLIC LANDS.

Acushnet River . . . . .	169
Appropriations, Contributions and Expenditures for River and Harbor Work, from 1893 to Nov. 30, 1921, inclusive, excepting Boston Harbor . . . . .	197
Boston Harbor . . . . .	159
Appropriations, Contributions and Expenditures for Improvement of Small Harbors and Channels within Boston Harbor, 1893 to 1921, inclusive . . . . .	195
Battery Wharf Dredging . . . . .	164
Commonwealth Flats at East Boston . . . . .	162
Railroad Connections . . . . .	163
Commonwealth Flats at South Boston . . . . .	159
Commonwealth Pier No. 5 . . . . .	159
Commonwealth Pier No. 6 . . . . .	160
Development of Land South of Summer Street . . . . .	161
South Bay . . . . .	161
Cottage Park, Winthrop . . . . .	166
Expenditures for Development and Improvement in Boston Harbor, 1859-1921, inclusive . . . . .	193
Haywards Creek . . . . .	166
Income . . . . .	192
Mystic River . . . . .	165
Old Harbor Dredging . . . . .	165
Port of Boston Fund . . . . .	192
Winthrop Harbor Dredging . . . . .	165
Wollaston Beach Dredging . . . . .	166
Conserving and equalizing the Flow of Water in Rivers and Streams . . . . .	181
Contracts made and pending during 1921 . . . . .	204
Contributions and Expenditures for River and Harbor Work, Dec. 1, 1920, to Nov. 30, 1921 . . . . .	196
Ellisville Harbor, Plymouth . . . . .	169
Falmouth Heights Sea Walls . . . . .	170

	PAGE
Falmouth Inner Harbor . . . . .	170
Federal Appropriations and Expenditures in Massachusetts Rivers and Harbors to June 30, 1921 . . . . .	201
Financial Statement . . . . .	192
Fish Weir Permits approved during the Year . . . . .	191
Gloucester Harbor . . . . .	171
Great Ponds . . . . .	180
Herring River, Harwich . . . . .	171
Hyannisport Harbor . . . . .	172
Income . . . . .	192
Katama Bay, Edgartown . . . . .	172
Lake Anthony . . . . .	173
Licenses granted during the Year . . . . .	185
Massachusetts Atlas Sheets and Town Boundary Atlases . . . . .	182
Menamsha Inlet . . . . .	173
Miscellaneous Permits granted during the Year . . . . .	191
New Bedford State Pier . . . . .	174
Nobscusset Harbor . . . . .	175
Oak Bluffs Sea Wall . . . . .	175
Province Lands . . . . .	182
Receipts, 1921 . . . . .	192
Re-establishment of Certain Triangulation Stations . . . . .	183
Rivers, Harbors, Tide Waters and Foreshores, exclusive of Boston Harbor	168
Scituate Sea Walls . . . . .	176
Glades . . . . .	176
Humarock Beach . . . . .	177
Third Cliff . . . . .	177
Special Reports to the Legislature . . . . .	183
Taunton River, Somerset . . . . .	177
Waterways Fund . . . . .	192
West Bay, Barnstable . . . . .	178
Wild Harbor, Falmouth . . . . .	178
Witchmere Harbor . . . . .	179







